Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong

9th Monthly Noise Monitoring Report

(For January 2023)

6 February 2023

Project No.: 0540005

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6 February 2023

Update of Design of the Existing Lagoon Show in Ocean Park Hong Kong

9th Monthly Noise Monitoring Report (For January 2023)

Terence Fong
Partner

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1. INTRODUCTION

ERM-Hong Kong, Limited (ERM) has been appointed by Ocean Park Corporation (OPC) to undertake noise monitoring for the first operational year of the Update of Design of the Existing Lagoon Show under the "*Repositioning and Long Term Operation Plan of Ocean Park"* (the Project) with an updated layout of loudspeaker clusters, as presented in the *Noise Review Study Report* (*Noise Review 2020)* deposited to the EPD on 9 January 2020.

1.1 Purpose of the Report

The Update of Design of the Existing Lagoon Show, including the Soul of the Ocean (SOTO) and Vision of Hong Kong (VHK), commenced on 19 January 2020. The associated 1st noise monitoring report which presented monitoring results during the reporting period from 10 January to 9 February 2020 submitted to EPD in February 2020. The operation of Ocean Park was then temporarily closed and the lagoon show was suspended due to COVID-19 afterwards.

The operation of Ocean Park resumed in February 2021 and the lagoon show has been resumed during holiday periods. The Lagoon Show (SOTO and VHK) was resumed from 12 November 2022. This is the 9th noise monitoring report which summarises the impact monitoring results during the reporting period from **1 January 2023** to **31 January 2023**.

1.2 Structure of the Report

After this introductory section, the remainder of this report is arranged as follows:

Section 2 describes the noise monitoring methodology, presents the monitoring results and discusses the results; and

Section 3 presents an overall conclusion of the noise monitoring.

2. NOISE MONITORING

2.1 Introduction

Noise monitoring has been carried out following the requirements given in Condition 3.1 of the Environmental Permit (EP-249/2006/D) and the updated EM&A Manual. The requirements and results are detailed in the following sections.

2.2 Noise Monitoring Requirements

It has been recommended in the approved EIA Report for *"Repositioning and Long Term Operation Plan of Ocean Park*" and stated in the EM&A Manual that fixed plant noise source monitoring should be conducted during the first operational year of the Open-air Night Show at the Aqua City. Therefore, noise monitoring is carried out during the first operational year of the Update of Design of the Existing Lagoon Show to review the compliance with the noise limits and requirements stipulated in the *Noise Review 2020*.

The monitoring of fixed plant noise source impact is to be conducted:

- During the lagoon night show (hereinafter referred to as "lagoon night show noise monitoring")

Lagoon night show noise monitoring was carried out at all designated monitoring stations during the performance of lagoon night shows at a logging interval of 5 minutes. The noise monitoring should be conducted twice a week, i.e. once on a normal weekday and once on a general holiday or Sunday, as per the EM&A Manual.

As confirmed with OPC, lagoon night show (VHK) has been resumed during weekends (Saturdays and Sundays) from 18 December 2021 to 2 January 2022. The other lagoon night show (Soul of the Ocean) has not been performed during this period. Based on the change in the show frequency, the need for noise monitoring during the lagoon night show was reviewed based on the monitoring results. Agreement from the IEC and approval from EPD (EPD's letter dated 2 December 2021) have been sought to reduce the monitoring frequency to once a week.

In view of the lagoon night show (SOTO and VHK) would be resumed during weekends (Saturday and Sunday) and Public Holidays from 12 November 2022 to 1 January 2023, agreement from the IEC and approval from EPD (EPD's letter dated 4 November 2022) have also been sought for the monitoring frequency of once a week.

As confirmed with OPC, the lagoon night show (SOTO and VHK) would be extended on weekend (Saturday and Sunday) and Public Holidays from 2 to 29 January 2023, agreement from IEC and approval from EPD (EPD's email dated 30 December 2022) have been sought and monitoring frequency would be maintained as weekly during the above-mentioned period.

The following sections describe the detailed methodology of the fixed plant noise monitoring.

2.2.1 Monitoring Locations

Noise monitoring was conducted at five alternative noise monitoring stations, which are the similar locations as that carried out during the first year of operation for the lagoon night show (ie Symbio) from January 2011 to February 2012. The five alternative noise monitoring stations are presented in *Table 2.1*, and shown in *Figure 2.1*.

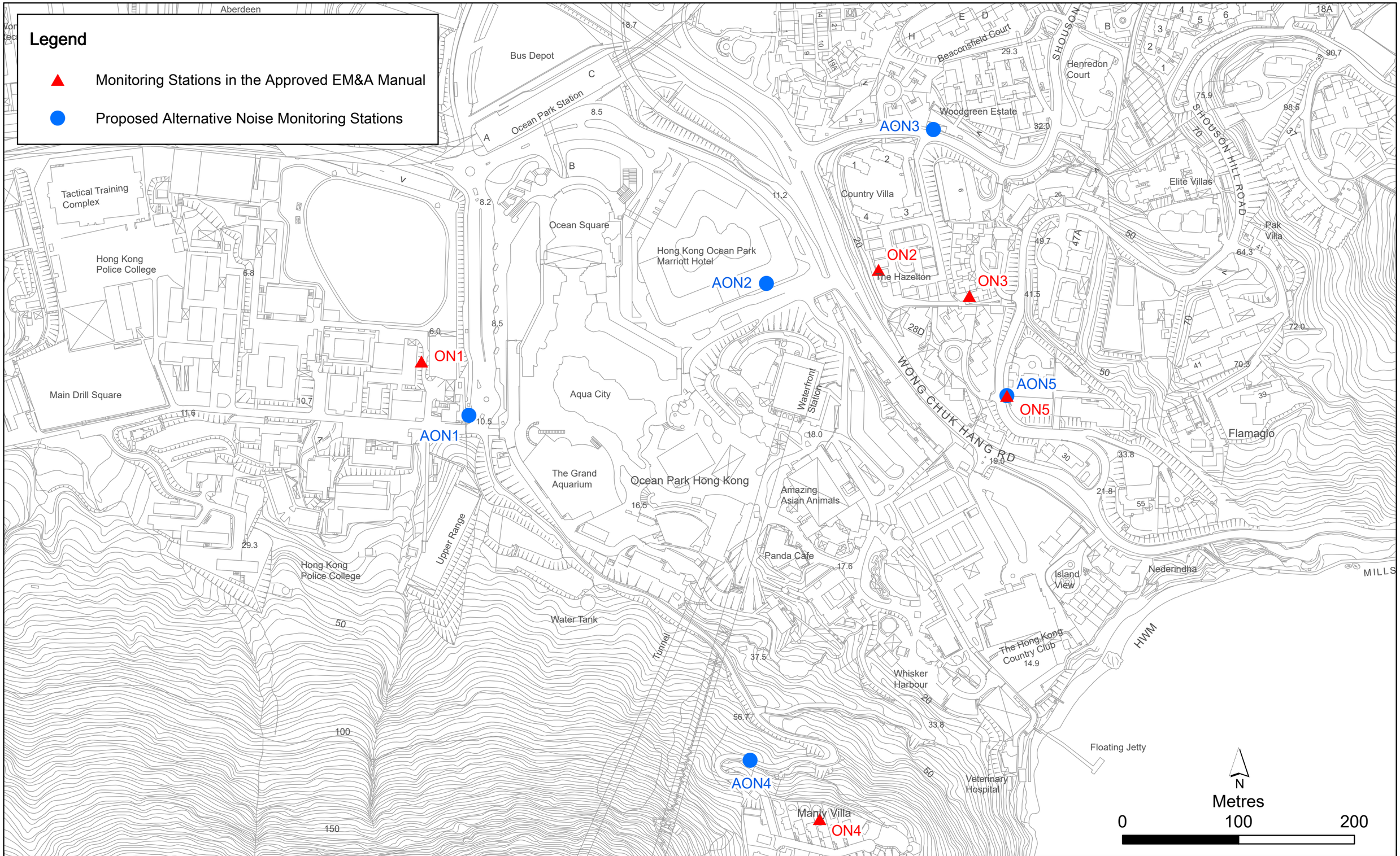

Figure 2.1

Noise Monitoring Locations

File: T:\GIS\CONTRACT\0540005\mxd\0540005_NSR.mxd
Date: 8/4/2021

Environmental Resources Management

ERM

Table 2.1 Alternative Noise Monitoring Stations

Alternative Noise Monitoring Stations	Description	Location	With or without Façade Correction
AON1	Open Area adjacent to Police Training School	1.2m above street level	without façade correction
AON2	Marriott Hotel, Ocean Park	1m from façade at roof level	with façade correction
AON3	Woodgreen Estate	1.5m above street level outside boundary wall	with façade correction
AON4 (a)	Manly Villa	1.2m above street level	with façade correction
AON5	Hau Yuen	3.0m above street level outside boundary wall	with façade correction

Note:
(a) Due to security concern from Manly Villa, alternative noise monitoring location, AON4, has been relocated away from the entrance of Manly Villa (see *Figure 2.1*) which is closer to Ocean Park. Therefore, it is considered representative.

2.2.2 Monitoring Parameters

2.2.2.1 Show Noise Monitoring

The measurements of $L_{Aeq, 5\ min}$ reading were carried out to calculate the noise level during the show with schedule shown in *Table 2.2*.

Table 2.2 Schedule of the Show

Description	Time
Soul of the Ocean (SOTO)	• Twice between 1900 and 2100 hrs on Saturday; • Once between 1900 and 1945 hrs on Sunday and Public Holidays; and • Last for around 16 minutes
Vision of Hong Kong (VHK)	• Twice between 1900 and 2100 hrs on Saturday; • Once between 1900 and 1945 hrs on Sunday and Public Holidays; and • Last for around 6 minutes.

2.2.2.2 Background Noise Level

Measurements of $L_{Aeq, 5\ min}$ reading were carried out before and after the show when speakers were switched off to calculate the overall background noise level at each locations.

Any significant influencing factors on the measured noise levels were noted in accordance with standard acoustical principles and practices. The background-corrected noise level due to the show was computed based on the background noise level and measured noise level during the shows.

2.2.3 Monitoring Frequency

The noise monitoring for the show was conducted once per week. Noise monitoring schedule during this reporting month is summarised in *Table 2.3*.

Table 2.3 Noise Monitoring Schedule during this Reporting Month

Scheduled Monitoring Date	Monitoring Stations
7 January 2023 (Saturday)	AON1 to AON5
14 January 2023 (Saturday)	AON1 to AON5
15 January 2023 (Sunday)	AON1 to AON5
28 January 2023 (Saturday)	AON1 to AON5

2.2.4 Monitoring Methodology

The sound level meters and calibrator used for the noise monitoring, as listed in *Table 2.4* below, complies with IEC 651: 1979 and 804:1985 (Type 1) or equivalent international standards.

Table 2.4 Noise Measurement Equipment

Monitoring Location		Monitoring Equipment
AON1	Open Area adjacent to Police Training School	RION NL-52 Sound Level Meter CEL-63X Sound Level Meter CAL200 Calibrator
AON2	Marriott Hotel, Ocean Park	RION NL-52 Sound Level Meter CAL200 Calibrator
AON3	Woodgreen Estate	RION NL-52 Sound Level Meter CAL200 Calibrator
AON4	Manly Villa	RION NL-52 Sound Level Meter CEL-120/1 Calibrator
AON5	Hau Yuen	RION NL-52 Sound Level Meter CEL-120/1 Calibrator

Noise monitoring was conducted with reference to the calibration and measurement procedures as stated in the *Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)* issued under the *Noise Control Ordinance (NCO)*. Immediately prior to and following each noise measurement the accuracy of the monitoring equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were accepted as the calibration levels from before and after the noise measurement agree to within 1.0 dB.

The sound level meters and acoustic calibrators have been calibrated by a HOKLAS accredited laboratory every two years. The relevant calibration certificates are presented in *Appendix A*.

Noise measurements were conducted without the presence of fog and rain, and with steady wind speed and gusts not exceeding 5 ms^{-1} and 10 ms^{-1}, respectively in accordance with international standards and practices [1]. Measurement of L_{Aeq}, L_{10}, L_{90}, L_{max} and L_{min} has been recorded for reference.

If measured noise level is affected by other noise sources at the monitoring station, eg traffic noise, such that the measured noise level is dominated by noise source other than the show, noise data will be discarded.

If measured noise level for the show is below or equal to the measured background noise level, the noise from the show is considered as insignificant and hence negligible at the monitoring location.

2.2.5 Compliance Assessment

2.2.5.1 Fixed Plant Noise Criteria

As recommended in the approved EIA Report and stated in the EM&A Manual, OPC will follow the Action and Limit (A/L) Levels as recommended in the approved EIA Report and EM&A Manual which are summarised in *Table 2.5*. In case exceedances are resulted from cumulative impacts, all steps stipulated in the Event/ Action Plan shall be followed.

Table 2.5 Action and Limit Levels for Entertainment Noise

Identification No.	Action Level	Limit Level
ON1/AON1	When documented complaint is received from any one of the sensitive receivers	$L_{eq\ (5\ min)}$ 60 dB(A)
ON2/AON2		$L_{eq\ (5\ min)}$ 60 dB(A)

([1]) ISO 11819-1:1997 and ISO/FDIS 13472-1:2001

Identification No.	Action Level	Limit Level
ON3/AON3		$L_{eq\ (5\ min)}$ 55 dB(A)
ON4/AON4		$L_{eq\ (5\ min)}$ 55 dB(A)
ON5/AON5		$L_{eq\ (5\ min)}$ 55 dB(A)

2.2.5.2 Noise Criteria for Outdoor Activities

As advised by EPD, the noise levels from the outdoor activities should not be more than 5dB(A) above the prevailing background noise level during the daytime and evening periods (0700-2300 hrs), as measured at 1m from the exterior building façade of the most affected NSRs for regular outdoor activities in accordance with the *Noise Control Guidelines for Music, Singing and Instrument Performing Activities*. For the night-time period (2300-0700 hrs of the next day), the noise from outdoor events should not be audible at the nearby NSRs.

2.3 Results of Noise Monitoring

The results of noise monitoring conducted during this reporting period are given in *Appendix B*, with summary of compliance shown in *Table 2.6*. Photographs taken at the monitoring stations are shown in *Appendix C*.

Table 2.6 Compliance of Noise Monitoring during this Reporting Period

Date	ID	Compliance		
		<BGL+5	Limit Level	Not Applicable
7 January 2023 (Saturday)	AON1	Yes	Yes	
(1st round of SOTO)	AON2	-	-	N/A [(a)]
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
7 January 2023 (Saturday)	AON1	Yes	Yes	
(1st round of VHK)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	-	-	N/A [(a)]
7 January 2023 (Saturday)	AON1	-	-	N/A [(a)]
(2nd round of SOTO)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
7 January 2023 (Saturday)	AON1	-	-	N/A [(a)]
(2nd round of VHK)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
14 January 2023 (Saturday)	AON1	Yes	Yes	
(1st round of SOTO)	AON2	Yes	Yes	
	AON3	-	-	N/A [(a)]
	AON4	Yes	Yes	
	AON5	Yes	Yes	
14 January 2023 (Saturday)	AON1	Yes	Yes	
(1st round of VHK)	AON2	Yes	Yes	
	AON3	-	-	N/A [(a)]
	AON4	Yes	Yes	
	AON5	Yes	Yes	
14 January 2023 (Saturday)	AON1	Yes	Yes	
(2nd round of SOTO)	AON2	Yes	Yes	

Date	ID	Compliance		
		<BGL+5	Limit Level	Not Applicable
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	-	-	N/A [(a)]
14 January 2023 (Saturday)	AON1	Yes	Yes	
(2nd round of VHK)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	-	-	N/A [(a)]
15 January 2023 (Sunday)	AON1	Yes	Yes	
(1st round of SOTO)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
15 January 2023 (Sunday)	AON1	Yes	Yes	
(1st round of VHK)	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
28 January 2023 (Saturday)	AON1	Yes	Yes	
1st round of SOTO	AON2	Yes	Yes	
	AON3	-	-	N/A [(a)]
	AON4	Yes	Yes	
	AON5	Yes	Yes	
28 January 2023 (Saturday)	AON1	Yes	Yes	
1st round of VHK	AON2	Yes	Yes	
	AON3	-	-	N/A [(a)]
	AON4	Yes	Yes	
	AON5	-	-	N/A [(a)]
28 January 2023 (Saturday)	AON1	Yes	Yes	
2nd round of SOTO	AON2	Yes	Yes	
	AON3	Yes	Yes	
	AON4	Yes	Yes	
	AON5	Yes	Yes	
28 January 2023 (Saturday)	AON1	Yes	Yes	
2nd round of VHK	AON2	Yes	Yes	
	AON3	-	-	N/A [(a)]
	AON4	Yes	Yes	
	AON5	Yes	Yes	

(a) Noise data discarded as measurement was affected by other significant noise sources, i.e., traffic and idling heavy vehicle.

2.4 Summary of Noise Exceedances

No record of noise exceedance during this reporting month.

3. CONCLUSION

This is the 9th monthly noise monitoring report which summarises the noise monitoring results during the reporting period on **1 January 2023 to 31 January 2023**.

The noise monitoring were carried out at five designated monitoring stations during this reporting period.

No noise exceedances have been recorded during this reporting period.

APPENDIX A CALIBRATION CERTIFICATES OF THE NOISE MEASUREMENT EQUIPMENT

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C220590
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-0067) Date of Receipt / 收件日期 : 11 January 2022

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00331805
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 30 January 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 31 January 2022

Certificate of Calibration
校正證書

Certificate No. : C220590
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 91.9	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C220590
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					16 kHz	86.0	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C220590
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 06829

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里 1號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration

for

Description:	***Sound Level Meter***
Manufacturer:	***Casella***
Type No.:	***CEL-63X (Serial No.: 3521757)***
Microphone:	***PCB 377B02 (Serial No.:152236)***
Preamplifier:	***CEL-495 (Serial No.:002776)***

Submitted by:

Customer:	*Envirotech Services Co.*
Address:	*Rm.113, 1/F., My Loft, 9 Hoi Wing Road, Tuen Mun, Hong Kong*

Upon receipt for calibration, the instrument was found to be:

☑ **Within**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 18 August 2022

Date of calibration: 20 August 2022

Date of NEXT calibration: 19 August 2023

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Tang Cheuk Hang
Quality Manager

Date of issue: **20 August 2022**

ACOUSTICS AND AIR TESTING LABORATORY CO LTD (A+A) *L

Certificate No.: APJ22-073-CC002

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature: 23.4 °C
Air Pressure: 1004 hPa
Relative Humidity: 60.8 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Frequency Response

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
20-140	dBA SPL	Fast	94	31.5	55.4	-39.4 ±2.0
				63	68.1	-26.2 ±1.5
				125	78.3	-16.1 ±1.5
				250	85.5	-8.6 ±1.4
				500	90.8	-3.2 ±1.4
				1000	94.0	Ref
				2000	94.9	+1.2 ±1.6
				4000	94.6	+1.0 ±1.6
				8000	91.5	-1.1 +2.1; -3.1

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.15
	63 Hz	± 0.05
	125 Hz	± 0.40
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.10
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

ACOUSTICS AND AIR TESTING LABORATORY CO LTD (A+A) *L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223340
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1069) Date of Receipt / 收件日期 : 2 June 2022

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00131627
Supplied By / 委託者 : Envirotech Services Co.
Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 June 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 20 June 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C223340
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C223340
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					16 kHz	86.0	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.0	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

Certificate of Calibration
校正證書

Certificate No. : C223340
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 10446

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223976
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1282) Date of Receipt / 收件日期 : 4 July 2022

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00331806
Supplied By / 委託者	:	Envirotech Services Co. Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 16 July 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 18 July 2022

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C223976
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 92.2	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C223976
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					16 kHz	86.1	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

Certificate of Calibration
校正證書

Certificate No. : C223976
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 16652

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223339
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1069) Date of Receipt / 收件日期 : 2 June 2022

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00643039
Supplied By / 委託者	:	Envirotech Services Co. Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 18 June 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 20 June 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C223339
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 96.2	± 1.1

* Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

Certificate of Calibration
校正證書

Certificate No. : C223339
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					16 kHz	86.0	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					16 kHz	84.1	-8.5 (+3.5 ; -17.0)

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223339
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 12128

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C224775
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1518) Date of Receipt / 收件日期 : 1 August 2022

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00643040
Supplied By / 委託者	:	Envirotech Services Co. Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 August 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Assistant Engineer

Certified By 核證 : K C Lee
Engineer

Date of Issue 簽發日期 : 23 August 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C224775
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C220381
CL281	Multifunction Acoustic Calibrator	AV210017

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.3	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.3 (Ref.)
				104.00		104.5
				114.00		114.6

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.3	Ref.
			Slow			94.3	± 0.3

Certificate of Calibration
校正證書

Certificate No. : C224775
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	68.1	-26.2 ± 1.5
					125 Hz	78.1	-16.1 ± 1.5
					250 Hz	85.6	-8.6 ± 1.4
					500 Hz	91.0	-3.2 ± 1.4
					1 kHz	94.3	Ref.
					2 kHz	95.5	+1.2 ± 1.6
					4 kHz	95.3	+1.0 ± 1.6
					8 kHz	93.3	-1.1 (+2.1 ; -3.1)
					16 kHz	86.3	-6.6 (+3.5 ; -17.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.4	-0.8 ± 1.5
					125 Hz	94.1	-0.2 ± 1.5
					250 Hz	94.3	0.0 ± 1.4
					500 Hz	94.3	0.0 ± 1.4
					1 kHz	94.3	Ref.
					2 kHz	94.1	-0.2 ± 1.6
					4 kHz	93.5	-0.8 ± 1.6
					8 kHz	91.4	-3.0 (+2.1 ; -3.1)
					16 kHz	84.4	-8.5 (+3.5 ; -17.0)

Certificate of Calibration
校正證書

Certificate No. : C224775
證書編號

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 10446

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	16 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223338
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1069) Date of Receipt / 收件日期 : 2 June 2022

Description / 儀器名稱	:	Precision Acoustic Calibrator
Manufacturer / 製造商	:	LARSON DAVIS
Model No. / 型號	:	CAL200
Serial No. / 編號	:	11333
Supplied By / 委託者	:	Envirotech Services Co. Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 June 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 20 June 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C223338
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C213954
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C221705

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.8	± 0.2	± 0.2
114 dB, 1 kHz	113.8		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C220969
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-0235) Date of Receipt / 收件日期 : 9 February 2022

Description / 儀器名稱 : Precision Acoustic Calibrator
Manufacturer / 製造商 : LARSON DAVIS
Model No. / 型號 : CAL200
Serial No. / 編號 : 11334
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 19 February 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification & user's specified acceptance criteria.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Assistant Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 22 February 2022

Sun Creation Engineering Limited Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C220969
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C213954
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C201309

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	User's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.6	± 0.5	± 0.2
114 dB, 1 kHz	113.7		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 1

Remarks : - The user's specified acceptance criteria (user's spec.) is a customer pre-defined operating tolerance of the UUT, suitable for one's own intended use.

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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輝創工程有限公司 – 校正及檢測實驗所
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Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C224774
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-1518) Date of Receipt / 收件日期 : 1 August 2022

Description / 儀器名稱 : Precision Acoustic Calibrator
Manufacturer / 製造商 : LARSON DAVIS
Model No. / 型號 : CAL200
Serial No. / 編號 : 16878
Supplied By / 委託者 : Envirotech Services Co.
Room 712, 7/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 20 August 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Assistant Engineer

Certified By 核證 : K C Lee
Engineer

Date of Issue 簽發日期 : 23 August 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C224774
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C223647
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C221705

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.9	± 0.2	± 0.2
114 dB, 1 kHz	113.9		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C222146
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC22-0627) Date of Receipt / 收件日期 : 4 April 2022

Description / 儀器名稱 : Acoustic Calibrator
Manufacturer / 製造商 : Casella
Model No. / 型號 : CEL-120/1
Serial No. / 編號 : 3421612
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 23 April 2022

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee
Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 28 April 2022

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C222146
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C213954
CL281	Multifunction Acoustic Calibrator	AV210017
TST150A	Measuring Amplifier	C221750

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.25	± 0.2
114 dB, 1 kHz	114.1		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 5 Hz	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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APPENDIX B RESULTS OF NOISE MONITORING

Appendix B - Noise Measurement Field Record Sheet

Project Name / GMS No.: 0511456 OPC Noise Monitoring

Noise Monitoring Station: AON1

Noise Monitoring Staff: Kwan Yong Liang

Noise Meter Model / Identification: Rion-NL52/ 00331805 & CEL-63X/ 3521757

Calibrator Model / Identification: CAL200 / 11333

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
7-Jan-23	18:45	18:50	Background	64.0	-	65.0	-	-	70.0	60	-	-	
	18:50	18:55	Background	63.9									
	18:55	19:00	Background	68.6									
	19:00	19:05	1st SOTO	65.6	64.1		-0.9	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	60.4									
	19:10	19:15	1st SOTO	65.8									
	19:15	19:20	1st SOTO / 1st VHK	62.3	62.1		-2.9	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	61.9									
	19:25	19:30	Background	64.4	-		-	-			-	-	
	19:30	19:35	Background	59.4									
	19:35	19:40	Background	64.8									
	20:15	20:20	Background	61.1	-	59.5	-	-	64.5	60	-	-	
	20:20	20:25	Background	60.8									
	20:25	20:30	Background	58.8									
	20:30	20:35	2nd SOTO	64.5	63.4		3.9	61.2			N/A	N/A	Dominated by traffic noise
	20:35	20:40	2nd SOTO	63.6									
	20:40	20:45	2nd SOTO	62.9									
	20:45	20:50	2nd SOTO / 2nd VHK	62.4	63.8		4.3	61.7			N/A	N/A	Dominated by traffic noise
	20:50	20:55	2nd VHK	64.8									
	20:55	21:00	Background	59.1	-		-	-			-	-	
	21:00	21:05	Background	56.9									
	21:05	21:10	Background	58.8									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
14-Jan-23	18:45	18:50	Background	68.0	-	66.3	-	-	71.3	60	-	-	
	18:50	18:55	Background	65.0									
	18:55	19:00	Background	69.0									
	19:00	19:05	1st SOTO	67.7	64.9		-1.4	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	63.1									
	19:10	19:15	1st SOTO	64.3									
	19:15	19:20	1st SOTO / 1st VHK	62.6	63.2		-3.1	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	63.8									
	19:25	19:30	Background	67.7	-		-	-			-	-	
	19:30	19:35	Background	61.1									
	19:35	19:40	Background	60.2									
	20:15	20:20	Background	59.0	-	61.1	-	-	66.1	60	-	-	
	20:20	20:25	Background	59.7									
	20:25	20:30	Background	64.7									
	20:30	20:35	2nd SOTO	59.4	60.6		-0.5	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	62.1									
	20:40	20:45	2nd SOTO	59.9									
	20:45	20:50	2nd SOTO / 2nd VHK	60.5	59.7		-1.4	Negligible			Yes	Yes	
	20:50	20:55	2nd VHK	58.6									
	20:55	21:00	Background	60.6	-		-	-			-	-	
	21:00	21:05	Background	57.4									
	21:05	21:10	Background	61.3									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
15-Jan-23	18:45	18:50	Background	64.7	-	65.0	-	-	70.0	60	-	-	
	18:50	18:55	Background	67.2									
	18:55	19:00	Background	65.6									
	19:00	19:05	1st SOTO	64.4	63.5		-1.5	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	62.2									
	19:10	19:15	1st SOTO	64.9									
	19:15	19:20	1st SOTO / 1st VHK	61.8	62.5		-2.5	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	63.1									
	19:25	19:30	Background	66.9	-		-	-			-	-	
	19:30	19:35	Background	59.8									
	19:35	19:40	Background	60.4									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
28-Jan-23	18:45	18:50	Background	64.6	-	64.1	-	-	69.1	60	-	-	
	18:50	18:55	Background	65.4									
	18:55	19:00	Background	64.7									
	19:00	19:05	1st SOTO	64.2	63.2		-0.9	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	59.5									
	19:10	19:15	1st SOTO	64.9									
	19:15	19:20	1st SOTO / 1st VHK	62.5	62.6		-1.5	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	62.6									
	19:25	19:30	Background	64.7	-		-	-			-	-	
	19:30	19:35	Background	62.3									
	19:35	19:40	Background	61.9									
	20:15	20:20	Background	59.8	-	65.6	-	-	70.6	60	-	-	
	20:20	20:25	Background	58.8									
	20:25	20:30	Background	60.8									
	20:30	20:35	2nd SOTO	63.7	62.1		-3.5	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	60.1									
	20:40	20:45	2nd SOTO	61.5									
	20:45	20:50	2nd SOTO / 2nd VHK	62.3	65.3		-0.3	Negligible			Yes	Yes	
	20:50	20:55	2nd VHK	67.1									
	20:55	21:00	Background	68.2	-		-	-			-	-	
	21:00	21:05	Background	67.1									
	21:05	21:10	Background	68.6									

Schedule of Event:
7-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
14-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
15-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25)
28-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)

Note:
(a) Average BGL was calculated using $L_{eq,\ 5min}$ 15 minutes before and after the show.
(b) Impact from the show is considered negligible when measured noise level with the show is lower than measured background noise level.
(c) The Schedule of Event on each monitoring date was confirmed with OPC's staff on-site.
(d) +3dB free-field correction has been applied to monitoring results at AON1

Appendix B - Noise Measurement Field Record Sheet

Project Name / GMS No.: 0511456 OPC Noise Monitoring

Noise Monitoring Station: AON2

Noise Monitoring Staff: Ho Kam Fat

Noise Meter Model / Identification: Rion-NL52/ 00331627

Calibrator Model / Identification: CAL200/ 11334

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
7-Jan-23	18:45	18:50	Background	63.1	-	62.3	-	-	67.3	60	-	-	
	18:50	18:55	Background	62.2									
	18:55	19:00	Background	61.5									
	19:00	19:05	1st SOTO	64.9	64.4		2.1	60.2			N/A	N/A	Dominated by traffic noise
	19:05	19:10	1st SOTO	63.3									
	19:10	19:15	1st SOTO	65.2									
	19:15	19:20	1st SOTO / 1st VHK	64.0	63.9		1.6	58.7			Yes	Yes	
	19:20	19:25	1st VHK	63.8									
	19:25	19:30	Background	62.5	-		-	-			-	-	
	19:30	19:35	Background	62.3									
	19:35	19:40	Background	62.2									
	20:15	20:20	Background	60.9	-	60.0	-	-	65.0	60	-	-	
	20:20	20:25	Background	60.7									
	20:25	20:30	Background	59.7									
	20:30	20:35	2nd SOTO	62.4	61.8		1.8	57.1			Yes	Yes	
	20:35	20:40	2nd SOTO	61.6									
	20:40	20:45	2nd SOTO	62.8									
	20:45	20:50	2nd SOTO / 2nd VHK	60.1	60.9		0.9	53.5			Yes	Yes	
	20:50	20:55	2nd VHK	61.6									
	20:55	21:00	Background	59.0	-		-	-			-	-	
	21:00	21:05	Background	60.4									
	21:05	21:10	Background	59.2									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
14-Jan-23	18:45	18:50	Background	62.5	-	62.4	-	-	67.4	60	-	-	
	18:50	18:55	Background	63.5									
	18:55	19:00	Background	62.6									
	19:00	19:05	1st SOTO	64.4	64.2		1.8	59.6			Yes	Yes	
	19:05	19:10	1st SOTO	64.0									
	19:10	19:15	1st SOTO	65.0									
	19:15	19:20	1st SOTO / 1st VHK	63.2	63.2		0.8	55.6			Yes	Yes	
	19:20	19:25	1st VHK	63.2									
	19:25	19:30	Background	61.5	-		-	-			-	-	
	19:30	19:35	Background	62.7									
	19:35	19:40	Background	60.9									
	20:15	20:20	Background	59.5	-	60.5	-	-	65.5	60	-	-	
	20:20	20:25	Background	59.9									
	20:25	20:30	Background	61.5									
	20:30	20:35	2nd SOTO	63.2	62.7		2.2	58.8			Yes	Yes	
	20:35	20:40	2nd SOTO	63.2									
	20:40	20:45	2nd SOTO	62.8									
	20:45	20:50	2nd SOTO / 2nd VHK	61.6	62.0		1.5	56.5			Yes	Yes	
	20:50	20:55	2nd VHK	62.3									
	20:55	21:00	Background	61.1	-		-	-			-	-	
	21:00	21:05	Background	60.7									
	21:05	21:10	Background	60.0									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
15-Jan-23	18:45	18:50	Background	61.7	-	60.8	-	-	65.8	60	-	-	
	18:50	18:55	Background	60.5									
	18:55	19:00	Background	61.8									
	19:00	19:05	1st SOTO	62.6	63.1		2.3	59.2			Yes	Yes	
	19:05	19:10	1st SOTO	61.9									
	19:10	19:15	1st SOTO	64.3									
	19:15	19:20	1st SOTO / 1st VHK	63.1	62.4		1.6	57.3			Yes	Yes	
	19:20	19:25	1st VHK	61.5									
	19:25	19:30	Background	60.0	-		-	-			-	-	
	19:30	19:35	Background	60.5									
	19:35	19:40	Background	59.6									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
28-Jan-23	18:45	18:50	Background	61.5	-	61.7	-	-	66.7	60	-	-	
	18:50	18:55	Background	62.3									
	18:55	19:00	Background	62.2									
	19:00	19:05	1st SOTO	62.3	63.2		1.5	57.9			Yes	Yes	
	19:05	19:10	1st SOTO	63.9									
	19:10	19:15	1st SOTO	63.6									
	19:15	19:20	1st SOTO / 1st VHK	62.8	63.2		1.5	57.8			Yes	Yes	
	19:20	19:25	1st VHK	63.5									
	19:25	19:30	Background	61.3	-		-	-			-	-	
	19:30	19:35	Background	61.4									
	19:35	19:40	Background	61.2									
	20:15	20:20	Background	59.2	-	59.4	-	-	64.4	60	-	-	
	20:20	20:25	Background	58.9									
	20:25	20:30	Background	59.3									
	20:30	20:35	2nd SOTO	61.6	61.9		2.5	58.3			Yes	Yes	
	20:35	20:40	2nd SOTO	62.3									
	20:40	20:45	2nd SOTO	62.2									
	20:45	20:50	2nd SOTO / 2nd VHK	61.5	62.0		2.6	58.4			Yes	Yes	
	20:50	20:55	2nd VHK	62.4									
	20:55	21:00	Background	60.1	-		-	-			-	-	
	21:00	21:05	Background	60.0									
	21:05	21:10	Background	59.0									

Schedule of Event:
7-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
14-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
15-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25)
28-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)

Note:
(a) Average BGL was calculated using $L_{eq,\ 5min}$ 15 minutes before and after the show.
(b) Impact from the show is considered negligible when measured noise level with the show is lower than measured background noise level.
(c) The Schedule of Event on each monitoring date was confirmed with OPC's staff on-site.

Appendix B - Noise Measurement Field Record Sheet

Project Name / GMS No.: 0511456 OPC Noise Monitoring

Noise Monitoring Station: AON3

Noise Monitoring Staff: Kwok Chi Lap

Noise Meter Model / Identification: Rion-NL52/ 00331806

Calibrator Model / Identification: CAL200/ 16878

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
7-Jan-23	18:45	18:50	Background	64.3	-	64.5	-	-	69.5	55	-	-	
	18:50	18:55	Background	63.2									
	18:55	19:00	Background	64.5									
	19:00	19:05	1st SOTO	67.4	64.0		-0.5	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	62.6									
	19:10	19:15	1st SOTO	62.4									
	19:15	19:20	1st SOTO / 1st VHK	60.4	60.7		-3.8	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	61.0									
	19:25	19:30	Background	62.7	-		-	-			-	-	
	19:30	19:35	Background	67.1									
	19:35	19:40	Background	63.6									
	20:15	20:20	Background	62.1	-	63.5	-	-	68.5	55	-	-	
	20:20	20:25	Background	59.6									
	20:25	20:30	Background	60.5									
	20:30	20:35	2nd SOTO	60.2	63.2		-0.3	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	63.7									
	20:40	20:45	2nd SOTO	63.9									
	20:45	20:50	2nd SOTO / 2nd VHK	64.1	63.5		0.0	46.3			Yes	Yes	
	20:50	20:55	2nd VHK	62.9									
	20:55	21:00	Background	67.7	-		-	-			-	-	
	21:00	21:05	Background	62.1									
	21:05	21:10	Background	63.3									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
14-Jan-23	18:45	18:50	Background	66.7	-	65.5	-	-	70.5	55	-	-	
	18:50	18:55	Background	67.7									
	18:55	19:00	Background	65.5									
	19:00	19:05	1st SOTO	67.2	66.9		1.4	61.4			N/A	N/A	Dominated by traffic noise
	19:05	19:10	1st SOTO	64.2									
	19:10	19:15	1st SOTO	67.9									
	19:15	19:20	1st SOTO / 1st VHK	67.4	68.5		3.0	65.4			N/A	N/A	Dominated by traffic noise
	19:20	19:25	1st VHK	69.3									
	19:25	19:30	Background	62.5	-		-	-			-	-	
	19:30	19:35	Background	62.3									
	19:35	19:40	Background	65.4									
	20:15	20:20	Background	61.7	-	65.6	-	-	70.6	55	-	-	
	20:20	20:25	Background	65.3									
	20:25	20:30	Background	65.8									
	20:30	20:35	2nd SOTO	61.2	63.0		-2.6	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	65.6									
	20:40	20:45	2nd SOTO	62.4									
	20:45	20:50	2nd SOTO / 2nd VHK	61.3	62.5		-3.1	Negligible			Yes	Yes	
	20:50	20:55	2nd VHK	63.5									
	20:55	21:00	Background	64.6	-		-	-			-	-	
	21:00	21:05	Background	66.6									
	21:05	21:10	Background	67.4									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
15-Jan-23	18:45	18:50	Background	67.0	-	66.8	-	-	71.8	55	-	-	
	18:50	18:55	Background	67.1									
	18:55	19:00	Background	66.1									
	19:00	19:05	1st SOTO	65.2	66.0		-0.8	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	64.6									
	19:10	19:15	1st SOTO	67.4									
	19:15	19:20	1st SOTO / 1st VHK	66.4	66.4		-0.4	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	66.3									
	19:25	19:30	Background	66.4	-		-	-			-	-	
	19:30	19:35	Background	68.5									
	19:35	19:40	Background	64.5									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
28-Jan-23	18:45	18:50	Background	64.7	-	64.7	-	-	69.7	55	-	-	
	18:50	18:55	Background	64.6									
	18:55	19:00	Background	64.8									
	19:00	19:05	1st SOTO	66.7	66.1		1.4	60.7			N/A	N/A	Dominated by traffic noise
	19:05	19:10	1st SOTO	65.5									
	19:10	19:15	1st SOTO	65.6									
	19:15	19:20	1st SOTO / 1st VHK	66.6	66.5		1.8	61.9			N/A	N/A	Dominated by traffic noise
	19:20	19:25	1st VHK	66.4									
	19:25	19:30	Background	65.5	-		-	-			-	-	
	19:30	19:35	Background	64.7									
	19:35	19:40	Background	63.4									
	20:15	20:20	Background	59.2	-	63.8	-	-	68.8	55	-	-	
	20:20	20:25	Background	64.5									
	20:25	20:30	Background	65.9									
	20:30	20:35	2nd SOTO	62.5	63.2		-0.6	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	62.8									
	20:40	20:45	2nd SOTO	64.9									
	20:45	20:50	2nd SOTO / 2nd VHK	62.0	64.6		0.8	57.0			N/A	N/A	Dominated by traffic noise
	20:50	20:55	2nd VHK	66.2									
	20:55	21:00	Background	61.5	-		-	-			-	-	
	21:00	21:05	Background	66.0									
	21:05	21:10	Background	61.3									

Schedule of Event:
7-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
14-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
15-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25)
28-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)

Note:
(a) Average BGL was calculated using $L_{eq,\ 5min}$ 15 minutes before and after the show.
(b) Impact from the show is considered negligible when measured noise level with the show is lower than measured background noise level.
(c) The Schedule of Event on each monitoring date was confirmed with OPC's staff on-site.

Appendix B - Noise Measurement Field Record Sheet

Project Name / GMS No.: 0511456 OPC Noise Monitoring

Noise Monitoring Station: AON4

Noise Monitoring Staff: Yeung Ping Fai

Noise Meter Model / Identification: Rion-NL52/ 00643039

Calibrator Model / Identification: CEL-120/1/ 3421612

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
7-Jan-23	18:45	18:50	Background	50.3	-	50.7	-	-	55.7	55	-	-	
	18:50	18:55	Background	49.4									
	18:55	19:00	Background	51.3									
	19:00	19:05	1st SOTO	49.9	50.6		-0.1	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	49.0									
	19:10	19:15	1st SOTO	50.9									
	19:15	19:20	1st SOTO / 1st VHK	52.0	51.1		0.4	40.5			Yes	Yes	
	19:20	19:25	1st VHK	49.9									
	19:25	19:30	Background	48.7	-		-	-			-	-	
	19:30	19:35	Background	52.3									
	19:35	19:40	Background	51.1									
	20:15	20:20	Background	50.5	-	49.3	-	-	54.3	55	-	-	
	20:20	20:25	Background	50.0									
	20:25	20:30	Background	49.3									
	20:30	20:35	2nd SOTO	52.9	52.7		3.4	50.1			Yes	Yes	
	20:35	20:40	2nd SOTO	55.4									
	20:40	20:45	2nd SOTO	50.9									
	20:45	20:50	2nd SOTO / 2nd VHK	49.1	49.4		0.1	29.6			Yes	Yes	
	20:50	20:55	2nd VHK	49.6									
	20:55	21:00	Background	48.6	-		-	-			-	-	
	21:00	21:05	Background	48.9									
	21:05	21:10	Background	48.1									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
14-Jan-23	18:45	18:50	Background	50.7	-	50.1	-	-	55.1	55	-	-	
	18:50	18:55	Background	51.2									
	18:55	19:00	Background	50.9									
	19:00	19:05	1st SOTO	54.8	53.3		3.2	50.4			Yes	Yes	
	19:05	19:10	1st SOTO	50.4									
	19:10	19:15	1st SOTO	54.5									
	19:15	19:20	1st SOTO / 1st VHK	52.0	50.9		0.8	43.1			Yes	Yes	
	19:20	19:25	1st VHK	49.4									
	19:25	19:30	Background	47.9	-		-	-			-	-	
	19:30	19:35	Background	49.1									
	19:35	19:40	Background	49.9									
	20:15	20:20	Background	48.9	-	48.9	-	-	53.9	55	-	-	
	20:20	20:25	Background	51.2									
	20:25	20:30	Background	50.4									
	20:30	20:35	2nd SOTO	53.1	51.6		2.7	48.3			Yes	Yes	
	20:35	20:40	2nd SOTO	49.5									
	20:40	20:45	2nd SOTO	52.9									
	20:45	20:50	2nd SOTO / 2nd VHK	49.8	49.1		0.2	36.0			Yes	Yes	
	20:50	20:55	2nd VHK	48.3									
	20:55	21:00	Background	47.8	-		-	-			-	-	
	21:00	21:05	Background	46.4									
	21:05	21:10	Background	46.3									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
15-Jan-23	18:45	18:50	Background	52.6	-	51.0	-	-	56.0	55	-	-	
	18:50	18:55	Background	53.4									
	18:55	19:00	Background	50.3									
	19:00	19:05	1st SOTO	51.0	51.9		0.9	44.9			Yes	Yes	
	19:05	19:10	1st SOTO	51.4									
	19:10	19:15	1st SOTO	52.8									
	19:15	19:20	1st SOTO / 1st VHK	52.3	52.7		1.7	47.9			Yes	Yes	
	19:20	19:25	1st VHK	53.1									
	19:25	19:30	Background	50.1	-		-	-			-	-	
	19:30	19:35	Background	48.7									
	19:35	19:40	Background	48.2									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
28-Jan-23	18:45	18:50	Background	49.3	-	49.0	-	-	54.0	55	-	-	
	18:50	18:55	Background	49.3									
	18:55	19:00	Background	48.8									
	19:00	19:05	1st SOTO	49.7	50.1		1.1	43.6			Yes	Yes	
	19:05	19:10	1st SOTO	49.6									
	19:10	19:15	1st SOTO	51.4									
	19:15	19:20	1st SOTO / 1st VHK	49.3	49.5		0.5	39.6			Yes	Yes	
	19:20	19:25	1st VHK	49.6									
	19:25	19:30	Background	48.5	-		-	-			-	-	
	19:30	19:35	Background	49.1									
	19:35	19:40	Background	48.8									
	20:15	20:20	Background	48.3	-	48.3	-	-	53.3	55	-	-	
	20:20	20:25	Background	52.4									
	20:25	20:30	Background	47.1									
	20:30	20:35	2nd SOTO	52.8	51.9		3.6	49.4			Yes	Yes	
	20:35	20:40	2nd SOTO	48.5									
	20:40	20:45	2nd SOTO	50.5									
	20:45	20:50	2nd SOTO / 2nd VHK	54.0	52.3		4.0	50.1			Yes	Yes	
	20:50	20:55	2nd VHK	49.5									
	20:55	21:00	Background	46.1	-		-	-			-	-	
	21:00	21:05	Background	45.8									
	21:05	21:10	Background	45.7									

Schedule of Event:
7-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
14-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
15-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25)
28-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)

Note:
(a) Average BGL was calculated using $L_{eq,\ 5min}$ 15 minutes before and after the show.
(b) Impact from the show is considered negligible when measured noise level with the show is lower than measured background noise level.
(c) The Schedule of Event on each monitoring date was confirmed with OPC's staff on-site.

Appendix B - Noise Measurement Field Record Sheet

Project Name / GMS No.: 0511456 OPC Noise Monitoring

Noise Monitoring Station: AON5

Noise Monitoring Staff: Magnum Fan

Noise Meter Model / Identification: Rion-NL52/ 00643040

Calibrator Model / Identification: CEL-120/1/ 3421612

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
7-Jan-23	18:45	18:50	Background	54.2	-	55.9	-	-	60.9	55	-	-	
	18:50	18:55	Background	58.5									
	18:55	19:00	Background	53.9									
	19:00	19:05	1st SOTO	57.5	58.4		2.5	54.9			Yes	Yes	
	19:05	19:10	1st SOTO	59.6									
	19:10	19:15	1st SOTO	53.6									
	19:15	19:20	Background	60.3	59.3		3.4	56.6			N/A	N/A	Dominated by traffic noise
	19:20	19:25	Background	57.9									
	19:25	19:30	1st VHK	54.9	-		-	-			-	-	
	19:30	19:35	Background	50.6									
	19:35	19:40	Background	58.3									
	20:15	20:20	Background	52.7	-	54.6	-	-	59.6	55	-	-	
	20:20	20:25	Background	52.0									
	20:25	20:30	Background	53.2									
	20:30	20:35	Background	54.9	54.8		0.2	43.0			Yes	Yes	
	20:35	20:40	2nd SOTO	54.2									
	20:40	20:45	2nd SOTO	55.8									
	20:45	20:50	2nd SOTO	54.3	53.1		-1.5	Negligible			Yes	Yes	
	20:50	20:55	Background	51.4									
	20:55	21:00	Background	53.8	-		-	-			-	-	
	21:00	21:05	2nd VHK	59.0									
	21:05	21:10	Background	51.0									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
14-Jan-23	18:45	18:50	Background	57.0	-	58.2	-	-	63.2	55	-	-	
	18:50	18:55	Background	53.8									
	18:55	19:00	Background	59.7									
	19:00	19:05	1st SOTO	54.6	58.0		-0.2	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	58.6									
	19:10	19:15	1st SOTO	57.7									
	19:15	19:20	1st SOTO / 1st VHK	59.6	58.2		0.0	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	56.0									
	19:25	19:30	Background	54.7	-		-	-			-	-	
	19:30	19:35	Background	61.6									
	19:35	19:40	Background	57.2									
	20:15	20:20	Background	54.4	-	55.2	-	-	60.2	55	-	-	
	20:20	20:25	Background	55.5									
	20:25	20:30	Background	55.9									
	20:30	20:35	2nd SOTO	54.0	58.2		3.0	55.2			N/A	N/A	Dominated by traffic noise
	20:35	20:40	2nd SOTO	60.5									
	20:40	20:45	2nd SOTO	59.6									
	20:45	20:50	2nd SOTO / 2nd VHK	55.3	59.7		4.5	57.8			N/A	N/A	Dominated by traffic noise
	20:50	20:55	2nd VHK	61.8									
	20:55	21:00	Background	52.4	-		-	-			-	-	
	21:00	21:05	Background	57.8									
	21:05	21:10	Background	52.3									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
15-Jan-23	18:45	18:50	Background	57.4	-	58.7	-	-	63.7	55	-	-	
	18:50	18:55	Background	64.9									
	18:55	19:00	Background	50.5									
	19:00	19:05	1st SOTO	56.9	55.9		-2.8	Negligible			Yes	Yes	
	19:05	19:10	1st SOTO	54.4									
	19:10	19:15	1st SOTO	54.1									
	19:15	19:20	1st SOTO / 1st VHK	57.4	56.4		-2.3	Negligible			Yes	Yes	
	19:20	19:25	1st VHK	55.0									
	19:25	19:30	Background	50.9	-		-	-			-	-	
	19:30	19:35	Background	53.7									
	19:35	19:40	Background	54.6									

Date	Start Time	End Time	Monitoring Event	Leq, 5min	Leq, 15min	Average BGL	Noise Level with Show - BGL	BG-corrected Leq, 15min	NCO (BGL+5)	Limit Level	Compliance		Remark
											NCO (BGL+5)	Limit Level	
28-Jan-23	18:45	18:50	Background	57.0	-	54.7	-	-	59.7	55	-	-	
	18:50	18:55	Background	54.4									
	18:55	19:00	Background	52.5									
	19:00	19:05	1st SOTO	57.4	56.5		1.8	52.0			Yes	Yes	
	19:05	19:10	1st SOTO	56.3									
	19:10	19:15	1st SOTO	53.9									
	19:15	19:20	1st SOTO / 1st VHK	57.6	58.7		4.0	56.4			N/A	N/A	Dominated by traffic noise
	19:20	19:25	1st VHK	59.5									
	19:25	19:30	Background	52.4	-		-	-			-	-	
	19:30	19:35	Background	54.8									
	19:35	19:40	Background	55.1									
	20:15	20:20	Background	67.3	-	60.2	-	-	65.2	55	-	-	
	20:20	20:25	Background	54.4									
	20:25	20:30	Background	53.0									
	20:30	20:35	2nd SOTO	53.6	53.9		-6.3	Negligible			Yes	Yes	
	20:35	20:40	2nd SOTO	51.7									
	20:40	20:45	2nd SOTO	56.4									
	20:45	20:50	2nd SOTO / 2nd VHK	52.0	54.6		-5.6	Negligible			Yes	Yes	
	20:50	20:55	2nd VHK	56.2									
	20:55	21:00	Background	50.6	-		-	-			-	-	
	21:00	21:05	Background	53.4									
	21:05	21:10	Background	49.3									

Schedule of Event:
7-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
14-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)
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28-1-2023: 1st SOTO (19:00-19:16), 1st VHK (19:18-19:25), 2nd SOTO (20:30-20:46), 2nd VHK (20:48-20:55)

Note:
(a) Average BGL was calculated using $L_{eq,\ 5min}$ 15 minutes before and after the show.
(b) Impact from the show is considered negligible when measured noise level with the show is lower than measured background noise level.
(c) The Schedule of Event on each monitoring date was confirmed with OPC's staff on-site.

APPENDIX C PHOTOGRAPHS OF THE MONITORING STATIONS

Appendix C

Open Area adjacent to Police Training School (AON1)

DATE: 28/01/2023

Environmental
Resources
Management

ERM

Appendix C

Marriot Hotel, Ocean Park (AON2)

DATE: 28/01/2023

Environmental
Resources
Management

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Appendix C

Woodgreen Estate (AON3)

DATE: 28/01/2023

Environmental
Resources
Management

ERM

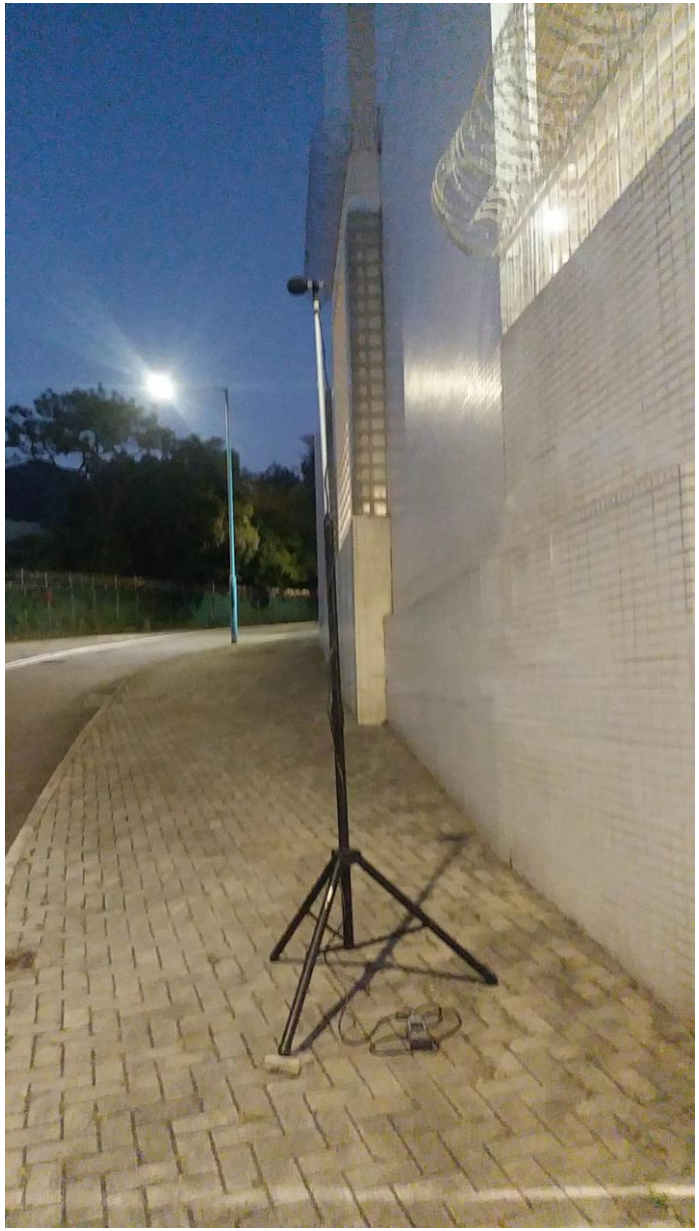
Appendix C

Manly Villa (AON4)

DATE: 28/01/2023

Environmental
Resources
Management

ERM



Appendix C

Hau Yuen (AON5)

DATE: 28/01/2023

Environmental
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ERM has over 160 offices across the following countries and territories worldwide

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India
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Italy
Japan
Kazakhstan
Kenya
Malaysia
Mexico
Myanmar
The Netherlands
New Zealand
Norway
Panama
Peru
Poland
Portugal
Puerto Rico
Romania
Russia
Singapore
South Africa
South Korea
Spain
Sweden
Switzerland
Taiwan
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