

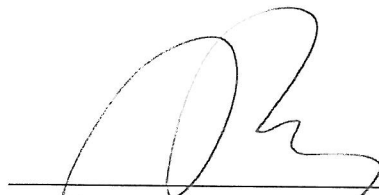
MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009/M)

Commissioning Test Report
for the Fixed Plant Noise at Mai Po, Ngau
Tam Mei, Shing Mun, ERS Plant Building –
North, ERS Plant Building – South
Ventilation Buildings
(MPV, NTV, SMV, SPN, SPS)

Verified by

:



(Eric Ching)

Position

:

Independent Environmental Checker

Date

:

3 Aug. 18

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU –
SHENZHEN – HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009/M)

**Commissioning Test Report
for the Fixed Plant Noise at Mai Po, Ngau
Tam Mei and Shing Mun Ventilation
Buildings; ERS Plant Building – North and
ERS Plant Building – South Ventilation
Building (MPV, NTV, SMV, SPN, SPS)**

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(Raymond Wong)

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- 3 AUG 2010

Hong Kong Section of Guangzhou-Shenzhen- Hong Kong Express Rail Link (XRL)

Commissioning Test Report for
the Fixed Plant Noise at Mai Po
(MPV), Ngau Tam Mei (NTV) and
Shing Mun (SMV) Ventilation
Buildings; ERS Plant Building –
North (SPN) and ERS Plant
Building – South (SPS)

MTR Corporation

July 2018

Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)

Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

1 Introduction

The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) Project (hereinafter known as “XRL”) covers a 26km long underground rail line on dedicated tracks that run between the terminus in West Kowloon and the boundary at Huanggang, where connects with the XRL Mainland section. XRL Project also includes the construction of ventilation buildings, emergency access points, stabling sidings and maintenance facilities and an emergency rescue siding (ERS) (formerly known as rescue emergency station).

The Environmental Impact Assessment (EIA) Report (Register No.: AEIA-143/2009) was approved on 28 September 2009 by the Director of Environmental Protection (DEP) under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an environmental permit (EP) was granted on 16 October 2009 (EP No: EP-349/2009) for the construction and operation of the Project. Variations of environmental permit (VEP) were subsequently applied and the latest Environmental Permit (EP No: EP-349/2009/M) (hereinafter known as “the EP”) was issued by Director of Environmental Protection (DEP) on 25 June 2018.

This report is prepared with reference to EP Condition 2.36, *“The Permit Holder shall, no later than two weeks before the commencement of the operation of the Project, deposit with the Director a Commissioning Test Report to confirm the compliance of the operational airborne and ground-borne noise levels in accordance with the EIA Report and the application for variation of an environmental permit No. VEP-377/2012 and its attached documents”*.

MTR Corporation has prepared the Commissioning Test Report for Fixed Plant Noise for the noise measurement to show the compliance of noise criteria in accordance with the EIA Report and the EP; also the noise measurement for investigation of any tonal, impulsive and intermittent characteristics from the fixed plant noise sources. This report presents the noise measurement methodology, calculated Sound Power Levels from noise measurements, results of noise measurement for the fixed plant noise sources installed at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS); and confirming any characteristics of tonality, impulsiveness and intermittency. For the fixed plant noise verification at the other ventilation buildings and West Kowloon Terminal (WKT) areas, separate reports would be submitted.

2 Noise Criteria

2.1 Fixed Plant Noise Criteria in EIA

With reference to the IND-TM under the Noise Control Ordinance (NCO), the relevant acceptable noise levels (ANL) were determined based on the area sensitivity rating (ASR).

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The fixed plant noise criteria for the representative noise sensitive receivers (NSRs) were determined in EIA as follow (whichever is lower):

- 5dB(A) below the appropriate ANL set out in the IND-TM (the ANL-5dB(A) criterion); or
- The prevailing background noise levels where the prevailing background noise level is 5dB(A) below the appropriate ANL (i.e. ANL-5dB(A))

The noise criteria above were determined for planning purpose. While for operation, the fixed plant noise is controlled by a Noise Abatement Notices system governed by the NCO.

The fixed plant noise criteria for the NSRs along the XRL alignment in MPV, NTV, SMV, SPN and SPS area, with the latest status of representative NSRs, are presented in **Table 2.1** below. Appropriate corrections in tonal, impulsive or intermittent characteristics should be applied, where applicable, in accordance with IND-TM during the commissioning test.

Table 2.1 Summary of Fixed Plant Noise Criteria

NSR	Description	Area Sensitivity Rating (ASR) ^(a)	Noise Criteria, dB(A) ^(a)	
			Day and Evening Time	Night-time
Mai Po Ventilation Building (MPV) (Figure 2.1)				
MP1	House 5 Phase A Royal Palms	B	60	50
MP5	Proposed Comprehensive Development at Wo Shang Wai	A	51	45
MP6	Planned village house at Village Zone	B	60	50
Ngau Tam Mei Ventilation Building (NTV) (Figure 2.2)				
NT1	Yau Tam Mei Village House	A	55	44
NT1a ^(b)	Yau Tam Mei Village House	A	55	44
NT4	Yau Tam Mei Village House	A	55	44
NT4a ^(b)	Yau Tam Mei Village House	A	55	44
NT4b ^(b)	Yau Tam Mei Village House	A	55	44
Shing Mun Ventilation Building (SMV) (Figure 2.3)				
SM1	Sau Shan House, Cheung Shan Estate	B	60	50
SM4	Shui Hong Nursing Home	B	60	50
ERS Plant Building - North (SPN) (Figure 2.4)				

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NSR	Description	Area Sensitivity Rating (ASR) ^(a)	Noise Criteria, dB(A) ^(a)	
			Day and Evening Time	Night-time
SS6	No.32 Leung Uk Tsuen	B	52	45
SS7	Leung Uk Tsuen Village House	B	49	47
SS10	DD110 LOT462, Wang Toi Shan	B	49	47
SS12	265 Kam Tai Road	B	49	47
SS15	Abandoned village house in Shek Kong	B	49	47
ERS Plant Building - South (SPS) (Figure 2.5)				
SS2	Nam Hing Lei Village House	B	49	39
SS4	Leung Uk Tsuen Village House	B	49	40
SS5	51A Leung Uk Tsuen	B	52	45
SS11a	Lueng Uk Tsuen Squats	B	52	50
SS14	Planned village house at Village Zone	B	49	47
SS20 ^(b)	Village house in Shek Kong	B	49	40

Note:

- (a) ASR and noise criteria either follow that defined in the EIA Report or relevant application for variation of environmental permit (VEP-377/2012) where appropriate.
- (b) These are representative NSRs additional to those identified in the EIA Report which the ASR and noise criteria are defined in Environmental Review Report for the application for variation of environmental permit (VEP-377-2012).

Fixed plant noise sources include: ventilation fans for building services, and plenum for tunnel ventilation, which are generally located inside plant rooms. Noise generated from indoor fixed plants would be emitted through louvres. The worst case scenario is when all eligible fixed plants at the same location operating concurrently under “normal scenario” for XRL operation during daytime and evening time periods; and night-time period, respectively. The worst case scenario was considered for compliance check against the fixed plant noise criteria and the noise measurement to confirm any characteristics of tonality, impulsiveness and intermittency at the identified NSRs.

Table 2.2 below summarised the information of the fixed plant noise sources and the layout plan is shown in **Figures 2.1 to 2.5a**.

Table 2.2 Summary of Fixed Plant Noise Sources

Source Location	Direction Facing	Louvre ID
<i>Mai Po Ventilation Building (MPV) (Figure 2.1)</i>		

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Source Location	Direction Facing	Louvre ID
ECS duct	North	N1
FS control room	North	N2
LV switch room	North	N3
Tunnel ventilation shaft	East	E1
Tunnel ventilation shaft	South	S1
Tunnel ventilation shaft	South	S2
Tunnel ventilation shaft	West	W1
Air Release Louvre	West	W2
Ngau Tam Mei Ventilation Building (NTV) (Figure 2.2)		
Tunnel ventilation shaft	North	N1
Tunnel ventilation shaft	North	N2
CTER	North	N3
ECS duct	North	N4
Tunnel ventilation shaft	East	E1
Tunnel ventilation shaft	East	E2
Tunnel ventilation shaft	South	S1
Tunnel ventilation shaft	South	S2
LV switch room	South	S3
LV switch room	South	S4
LV switch room	South	S5
Exhaust Air Duct	South	S6
UPS Room Fresh Air Intake	West	W1
Shing Mun Ventilation Building (SMV) (Figure 2.3)		
Tunnel ventilation shaft	North	N1
FS inlet	North	N2
MCC room	North	N3
Exhaust air louvre	North	N4
Staircase pressurization fan room	North	N5
UPS room	East	E1
LV switch room	East	E2
Fresh air louvre	East	E3
Staircase pressurization fan room 1	East	E4
Staircase pressurization fan room 2	East	E5
Tunnel ventilation shaft	South	S1
Sprinkler & FS pump room	South	S2
Air compressor receiver room	South	S3
Tunnel ECS control room	South	S4
Staircase pressurization fan room	South	S5
Tunnel ventilation shaft	West	W1
Tunnel ventilation shaft	West	W2
SPS air release louvre	West	W3
Track section cabin room	West	W4
ERS Plant Building - North (SPN) (Figures 2.4 and 2.4a)		
Tunnel Ventilation Shaft	North	N1
Tunnel Ventilation Shaft	North	N2

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Source Location	Direction Facing	Louvre ID
Dog House	North	N3
Tunnel Ventilation Shaft	East	E1
T.ECS Control Room	East	E2
Dog House	East	E3
Tunnel Ventilation Shaft	South	S1
Tunnel Ventilation Shaft	South	S2
Tunnel Ventilation Shaft	West	W1
ABBCS Room	West	W2
ERS Plant Building - South (SPS) (Figures 2.5 and 2.5a)		
Tunnel Ventilation Shaft	North	N1
Tunnel Ventilation Shaft	North	N2
Dog House	North	N3
Tunnel Ventilation Shaft	East	E1
Air Compressor Receiver Room	East	E2
T.ECS Control Room	East	E3
Dog House	East	E4
Dog House	East	E5
Tunnel Ventilation Shaft	South	S1
Tunnel Ventilation Shaft	South	S2
Dog House	South	S3
Tunnel Ventilation Shaft	West	W1
Building Service Control Room	West	W2
MCC Room	West	W3
Dog House	West	W4

3 Methodology

3.1 Noise Measurement for the Fixed Plants

Noise measurements to obtain the noise levels of the fixed plants were undertaken by Supreme Acoustics Research Limited, GAS Joint Venture and ATAL Building Services Engineering Ltd. The commissioning tests were carried out by qualified persons possessing at least 7 years of noise control experience and a corporate member of Hong Kong Institute of Acoustics or equivalent in accordance with S3.22 of the XRL EM&A Manual.

3.1.1 Methodology

Three measurement methods, namely Method 1 (at or near NSR), Method 2 (Far Field) and Method 3 (Near Field), have been developed based on NCO-TM, basic acoustic principles and ISO 3746-2010: *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Survey method using an enveloping measurement surface over a reflecting plane*, respectively. Given the fixed plant noise sources are steady, all proposed methods could be adopted for all types of fixed plant source depending on the site environment/constraints that might affect the possibility to obtain valid results, considerations including but not limited to:

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- Background noise with less influence to the measured noise levels
- Free of obstacles between measurement location and noise source
- Accessibility and Safety Concerns

Considering the reliability of data collection, i.e. results not influenced by the above-mentioned considerations, and the measurement efficiency on site, the selection of methodology was prioritized based on efficient measurement as Method 1 (at or near NSR) > Method 2 (Far Field) > Method 3 (Near Field). However, various considerations which may affect the validity of results using Method 1 were taken in account, such as the distances between fixed plants and NSRs at MPV and SPN/SPS are too far away (at least 66m for MPV, 120m for SPN and 159m for SPS) and some of these NSRs are screened by noise barriers (e.g. MP1, SS4, SS11a, SS15, SS20), under Proposed Comprehensive Development at Wo Shang Wai, Yuen Long (EP No: EP-311/2008/E) and under the Project at Shek Kong Stabling Sidings respectively (refer to **Figures 2.1, 2.4 and 2.5**); where the background noise at NSRs would mask the fixed plant noises from MPV and SPN/SPS. NSRs at NTV has no appropriate accessible location which meets the minimum distance requirement, etc. For SMV, considering there are heavy traffic and bus stops along Cheung Pei Shan Estate Road West immediately in front of the NSRs; obtaining valid results using Method 1 was considered unlikely. As such, only Method 2 and Method 3 were considered applicable. Method used for each louvre is presented in **Appendix A3**. Details of the measurement methodology are shown in **Appendix A1**.

Method 1 – Measuring Sound Pressure Level at NSR or Near NSR

- Measurement at NSR or near NSR at distance D away from the louvre, where D was at least two times the largest dimension b of the louvre and rounded up to integer, i.e.: $D \geq 2b$
- The microphone was pointing toward the louvre and three measurements were taken when the noise source from the louvre was switched ON
- Background noise level was taken when the noise source from louvre was switched OFF
- The sound pressure level (SPL) at NSR or near NSR was determined by the following equation:
$$\text{Background corrected } L_p = L_p + BG - [20\log D + 8] \text{ (if applicable) } + \text{façade correction (if applicable)}$$

Where

L_p is the average $L_{eq,1min}$ of all measurements, in dB(A);

BG is the background correction factor, in dB(A);

D is separation between the center of louvre or surface of the plant and the microphone, in metres.

Method 2 – Measuring Sound Power Level by Far Field Method for Louvres or for Plants

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- The microphone was positioned at the perpendicular distance D away from the center of the louvre or the surface of the plant, where D was at least two times the largest dimension b of the louvre or plant and rounded up to integer, i.e.: $D \geq 2b$
- The microphone was pointing toward the center of the louvre/combined louvre area or the center the plant; and three measurements were taken when the noise source from the louvre was switched ON
- Background noise level was taken when the noise source from the louvre or plant was switched OFF
- The sound power level (SWL) of the louvre or the plant was determined, based on basic acoustic principles, by the following equation:

$$L_w = L_p + 20\log D, center + 8 + BG$$

Where

L_p is the average $L_{eq,1min}$ of all measurements, in dB(A);

$D, center$ is separation between the center of louvre or plant and the microphone, in metres;

BG is the background correction factor, in dB(A).

Method 3 – Measuring Sound Power Level by Near Field Method for Louvres or for Plants

- A right parallelepiped hypothetical measurement box for each louvre or each surface of a plant was determined according to ISO 3746:2010, with each side being spaced a distance D from the corresponding side of the louvre or plant
- Each of the 5 planes of the measurement box was subdivided into equal-sized rectangular grids, the length of each side of the grids should be less than or equal to 3 times of distance D , i.e. grid length $\leq 3D$
- The microphone was pointing toward the center of each grid, and a measurement was taken for each grid during the noise source from the louvre was switched ON
- Background noise level was taken when the noise source from louvre or plant was switched OFF
- The SWL of the louvre or the plant was determined by the following equation:

$$L_w = L_p + 10\log(S) - K_{1A} - K_{2A}$$

Where

L_p is the averaged measured L_{eq} of all measurement points, in dB(A);

S is the total surface area over the measurement box (total 5 planes), in m^2 ;

K_{1A} is the background correction factor as described in ISO 3746:2010, in dB(A);

K_{2A} is the environmental correction for sound absorption and reflection as described in ISO 3746:2010, in dB(A).

Except for Method 3, which was adopted with reference to ISO 3746:2010; the noise sources measured using Method 1 or Method 2 were considered steady if the difference between

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the maximum and minimum Leq is less than or equal to 1dB(A), ie, $\leq 1\text{dB(A)}$; average Leq was therefore considered. Otherwise, the maximum Leq would be adopted for SWL determination as a conservative approach.

3.1.2 Measurement Equipment

The sound level meters and calibrators used for noise measurements are listed in **Table 3.1**. The instruments complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) or equivalent international standards. Calibration certificates are shown in **Appendix A2**.

Table 3.1 Noise Measurement Equipment

Equipment	Model	Serial Number
Sound Level Meter	NTi XL2	5011
	NTi XL2	5617
	NTi XL2	6240
	Casella CEL-63X	5044655
Calibrator	BSWA TECH CA111	320248
	Casella CEL-120/1	5060836

Before and after each series of measurements, a calibration check was carried out on the sound level meter by the calibrator. The difference between the readings made before and after each series of measurements shall be less than or equal to 1.0 dB.

3.1.3 Measurement Schedule

The noise measurements were carried out during daytime, evening time and night-time periods, where the fixed plant items were operated steadily and continuously at their noisiest operating mode under normal scenario. The noise measurement schedule is shown in **Table 3.2**.

Table 3.2 Measurement Schedule

Location	Date	Time
MPV	9-10, 11-12 Oct 2017	22:00 – 06:00
	13 Oct 2017	10:00 – 12:00
	22 Nov 2017	00:00 – 06:00
NTV	30 Aug 2017	18:00 – 22:00
	11 Oct 2017	11:00 – 16:00
	12, 14 Dec 2017	14:00 – 20:00
SMV	27-28 Apr 2017	22:00 – 05:00
	15 Nov 2017	14:00 – 17:00
SPN	20-21 Apr 2017	00:00 – 03:00
	1 Dec 2017	10:30 – 12:00
SPS	20-21 Apr 2017	00:00 – 03:00
	1 Dec 2017	14:00 – 16:00
	10 Jan 2018	16:00 – 18:00

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3.2 Noise Measurement to Confirm Any Characteristics of Tonality, Impulsiveness and Intermittency at NSRs

3.2.1 Measurement Equipment

The sound level meters and calibrators used for noise measurements are listed in **Table 3.3**. The instruments complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) or equivalent international standards. Calibration certificates are shown in **Appendix A2**.

Table 3.3 Noise Measurement Equipment

Equipment	Model	Serial Number
Sound Level Meter	Casella CEL-63X	5044655
	Brüel & Kjær 2250-L	2701830
	Brüel & Kjær 2250	2704790
	NTi XL2	5011
	NTi XL2	5617
	NTi XL2	6240
Calibrator	Casella CEL-120/1	5060836
	BSWA TECH CA111	320248

3.2.2 Measurement Parameters

With reference to the IND-TM, the noise measurement was conducted at the representative NSR for $L_{Aeq(30min)}$ in one-third octave band under the worst case scenario, ie, “normal scenario” during daytime and evening time periods; and night-time period, respectively.

The fixed plant noise sources will be operated steadily and continuously, and therefore no intermittency and impulsiveness are expected at the NSR. However, the characteristics of intermittency and impulsiveness will be recorded, if any, based on observation during measurement.

2 sets of background noise level, $L_{Aeq(5min)}$, and in one-third octave band, were measured at each measurement location when all fixed plant noise sources were not in operation.

3.2.3 Measurement Location

The noise measurement was carried out at the first layer of NSRs for the concerned areas. The measurement locations are summarised in Table 3.4 and shown in **Figures 2.1 to 2.5**.

Table 3.4 Measurement Locations

Location	NSR	Description
MPV	MP1	House 5 Phase A Royal Palms
	MP5	Proposed Comprehensive Development at Wo Shang Wai
	MP6	Planned village house at Village Zone
NTV	NT1a	Yau Tam Mei Village House
	NT4a	Yau Tam Mei Village House

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Location	NSR	Description
SMV	SM1	Sau Shan House, Cheung Shan Estate
	SM4	Shui Hong Nursing House
SPN	SS7	Leung Uk Tsuen Village House
	SS10	DD110 LOT 452, Wang Toi Shan
	SS15 ^(a)	Abandoned village house in Shek Kong
SPS	SS11a ^(a)	Leung Uk Tsuen Squats
	SS20 ^(a)	Village house in Shek Kong

Note:

- (a) Certain direction of the ventilation shaft is totally or partially screened by the proposed noise barriers at Shek Kong Stabling Sidings (SSS).

3.2.4 Measurement Schedule

The noise measurements were carried out at the monitoring location for MPV, NTV, SMV, SPN and SPS, where the fixed plant items were operated steadily and continuously at their noisiest operating mode under normal scenario. The noise measurement schedule is shown in **Table 3.5**. Sample measurement photos of MPV, NTV, SMV, SPN and SPS are shown in **Appendix A3**.

Table 3.5 Measurement Schedule

Location	Date
MPV	25 – 26 Apr 2018
NTV	17 – 18 May 2018
SMV	8 – 9 Jun 2018
SPN	24 – 25 May 2018
SPS	24 – 25 May 2018

4 Measurement Results

4.1 The Noise Levels of Fixed Plant Noise Sources

The noise levels measured under the worst case scenario are determined and presented in **Table 4.1**. Details of the measurement results are shown in **Appendix A3**.

Table 4.1 Summary of Sound Power Levels for Fixed Plants

Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq} , dB(A)
MPV	North N1 ^(a)	67
	North N2	69
	North N3	72
	East E1	74
	South S1	74
	South S2	75
	West W1	70
	West W2 ^(a)	69
NTV	North N1	72

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Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq} , dB(A)
	North N2	70
	North N3	61
	North N4 ^(a)	73
	East E1	77
	East E2	72
	South S1 ^(a)	78
	South S2 ^(a)	78
	South S3 ^(a)	76
	South S4 ^(a)	71
	South S5 ^(a)	76
	South S6 ^(a)	88
	West W1 ^(a)	82
SMV	North N1	80
	North N2	63
	North N3	77
	North N4	61
	North N5 ^(a)	74
	East E1 ^(a)	89
	East E2	81
	East E3	62
	East E4 ^(a)	74
	East E5 ^(a)	67
	South S1	89
	South S2	84
	South S3	86
	South S4	86
	South S5 ^(a)	68
	West W1	76
	West W2	76
	West W3 ^(a)	97
	West W4	78
SPN	North N1	84
	North N2	84
	North N3	66
	East E1	85
	East E2	64
	East E3	68
	South S1	90
	South S2	89
	West W1	87
	West W2	72
SPS	North N1	88
	North N2	90
	North N3	71

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Works Area	Direction Facing/ Elevation	Calculated SWL L_{Aeq} , dB(A)
	East E1	84
	East E2	90
	East E3	89
	East E4	78
	East E5	76
	South S1	82
	South S2	84
	South S3	82
	West W1	84
	West W2	76
	West W3	80
	West W4	74

Note:

- (a) The plant would be operated during day and evening time only under normal scenario.

A compliance check against the fixed plant noise criteria at NSR was conducted. The cumulative noise levels from noise sources were assessed to ensure the compliance with the noise criterion. **Table 4.2** shows the results, details of the calculation are also given in **Appendix A3**.

Table 4.2 Cumulative Fixed Plant Noise at NSR

NSR	Source Location	Cumulative SPL, dB(A)		Noise Criteria, dB(A)		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
MP1	Ventilation Shaft and Building Service	29	28	60	50	Y	Y
MP5	Ventilation Shaft and Building Service	34	33	51	45	Y	Y
MP6	Ventilation Shaft and Building Service	35	35	60	50	Y	Y
NT1	Ventilation Shaft for N/B ^(a) and Building Service	42	36	55	44	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	44	40	55	44	Y	Y
NT1a	Ventilation Shaft for N/B ^(a) and Building Service	43	40	55	44	Y	Y
	Ventilation Shaft	44	42	55	44	Y	Y

Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)

Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

NSR	Source Location	Cumulative SPL, dB(A)		Noise Criteria, dB(A)		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	for S/B ^(a) and Building Service						
NT4	Ventilation Shaft for N/B ^(a) and Building Service	44	42	55	44	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	42	36	55	44	Y	Y
NT4a	Ventilation Shaft for N/B ^(a) and Building Service	44	42	55	44	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	42	37	55	44	Y	Y
NT4b	Ventilation Shaft for N/B ^(a) and Building Service	40	36	55	44	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	41	38	55	44	Y	Y
SM1	Ventilation Shaft for N/B ^(a) and Building Service	56	49	60	50	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	56	49	60	50	Y	Y
SM4	Ventilation Shaft for N/B ^(a) and Building Service	59	47	60	50	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	59	45	60	50	Y	Y
SS6	Ventilation Shaft for N/B ^(a) and Building Service	39	39	52	45	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	41	41	52	45	Y	Y
SS7	Ventilation Shaft for N/B ^(a) and Building Service	39	39	49	47	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	41	41	49	47	Y	Y

Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)

Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

NSR	Source Location	Cumulative SPL, dB(A)		Noise Criteria, dB(A)		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
	Building Service						
SS10	Ventilation Shaft for N/B ^(a) and Building Service	36	36	49	47	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	35	35	49	47	Y	Y
SS12	Ventilation Shaft for N/B ^(a) and Building Service	36	36	49	47	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	33	33	49	47	Y	Y
SS15 ^(b)	Ventilation Shaft for N/B ^(a) and Building Service	39	39	49	47	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	42	42	49	47	Y	Y
SS2	Ventilation Shaft for N/B ^(a) and Building Service	32	32	49	39	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	31	31	49	39	Y	Y
SS4 ^(b)	Ventilation Shaft for N/B ^(a) and Building Service	35	35	49	40	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	35	35	49	40	Y	Y
SS5	Ventilation Shaft for N/B ^(a) and Building Service	43	43	52	45	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	43	43	52	45	Y	Y
SS11a ^(b)	Ventilation Shaft for N/B ^(a) and Building Service	42	42	52	50	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	40	40	52	50	Y	Y

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Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

NSR	Source Location	Cumulative SPL, dB(A)		Noise Criteria, dB(A)		Compliance (Y/N)	
		Day and Evening Time	Night-time	Day and Evening Time	Night-time	Day and Evening Time	Night-time
SS14	Ventilation Shaft for N/B ^(a) and Building Service	40	40	49	47	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	40	40	49	47	Y	Y
SS20 ^(b)	Ventilation Shaft for N/B ^(a) and Building Service	36	36	49	40	Y	Y
	Ventilation Shaft for S/B ^(a) and Building Service	36	36	49	40	Y	Y

Note:

- (a) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario for NTV, SMV, SPN and SPS. Tunnel ventilation would be operated for both northbound (N/B) and southbound (S/B) direction under normal scenario for MPV.
- (b) Certain direction of the ventilation shaft is totally or partially screened by the proposed noise barriers at SSS.

4.2 The Characteristics of Tonality, Impulsiveness and Intermittency at NSRs

Noise measurement to confirm any characteristics of tonality, impulsiveness and intermittency at the identified NSRs were conducted under the normal scenarios during daytime and evening, and during night-time, respectively and summarised in **Table 4.3** below. In each scenario, two sets of noise measurements, $L_{Aeq(30min)}$, in one-third octave band, were carried out to confirm that the difference in the measured noise levels with and without operation of fixed plant noise sources were less than 3.0 dB(A). That means the fixed plant noise sources from the ventilation buildings and the plant buildings are not considered as significant noise sources at the NSR. Noise measurements at NTV and some NSRs at SPN/SPS (e.g. SS11a, SS15 and SS20) were dominated by community noise; MPV, SMV and some NSRs at SPN/SPS (e.g. SS7, SS10) were dominated by the road traffic noise along Castle Peak Road – Mai Po and San Tin Highway, Cheung Pei Shan Estate Road West and Kam Tin Road, respectively; characteristics of tonality, impulsiveness and intermittency due to the fixed plant noise sources from the ventilation buildings was not noticeable during the measurement. Detailed results of noise measurements are shown in **Appendix A4**.

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Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

Table 4.3 Noise measurement Results at NSR

NSR	Scenario	Measured Noise Level $L_{Aeq(30min)}$, dB(A), (measurement time) (b)	Averaged Background Level $L_{Aeq(5min)}$, dB(A), (measurement time) (a)	Difference between Measured Noise Level and Background Level, dB(A), (< 3.0 or >= 3.0)
MP1	Day and Evening Time	49.0 (22:45 – 23:15) 48.4 (00:25 – 00:55)	48.9 (22:00 – 22:20)	< 3.0
	Night-time	49.0 (01:00 – 01:30) 49.7 (01:30 – 02:00)	49.6 (02:10 – 02:20)	< 3.0
MP5	Day and Evening Time	48.1 (22:45 – 23:15) 48.9 (00:25 – 00:55)	46.7 (22:00 – 22:20)	< 3.0
	Night-time	49.8 (01:00 – 01:30) 48.4 (01:30 – 02:00)	47.8 (02:05 – 02:20)	< 3.0
MP6	Day and Evening Time	48.7 (22:45 – 23:15) 46.4 (00:25 – 00:55)	48.5 (22:00 – 22:20)	< 3.0
	Night-time	48.4 (01:00 – 01:30) 47.6 (01:30 – 02:00)	47.1 (02:05 – 02:15)	< 3.0
NT1a	Day and Evening Time	52.0 (23:25 – 23:55) 52.8 (23:56 – 00:26)	52.2 (23:08 – 23:18)	< 3.0
	Night-time	46.9 (00:28 – 00:58) 45.7 (01:03 – 01:33)	44.0 (01:54 – 02:14)	< 3.0
NT4a	Day and Evening Time	50.8 (23:24 – 23:54) 52.5 (23:55 – 00:25)	52.1 (23:13 – 23:23)	< 3.0
	Night-time	52.8 (00:32 – 01:02) 53.2 (01:03 – 01:33)	52.6 (01:40 – 01:50)	< 3.0
SM1	Day and Evening Time	64.2 (22:39 – 23:09) 64.3 (23:10 – 23:40)	65.1 (22:12 – 22:27)	< 3.0
	Night-time	61.3 (23:42 – 00:12) 60.9 (00:13 – 00:43)	59.7 (00:49 – 00:59)	< 3.0
SM4	Day and Evening Time	60.6 (22:30 – 23:00) 59.4 (23:00 – 23:30)	60.4 (21:45 – 21:55)	< 3.0
	Night-time	56.6 (23:34 – 00:04) 56.7 (00:04 – 00:34)	55.6 (00:39 – 00:49)	< 3.0
SS7	Day and Evening Time	50.7 (23:43 – 00:13) 48.5 (00:13 – 00:43)	50.2 (23:30 – 23:40)	< 3.0
	Night-time	47.9 (00:50 – 01:20) 47.2 (01:20 – 01:50)	46.9 (02:25 – 02:40)	< 3.0
SS10	Day and	58.9 (23:42 – 00:12)	57.2 (23:18 – 23:28)	< 3.0

Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL)

Commissioning Test Report for the Fixed Plant Noise at Mai Po (MPV), Ngau Tam Mei (NTV) and Shing Mun (SMV) Ventilation Buildings; ERS Plant Building – North (SPN) and ERS Plant Building – South (SPS)

NSR	Scenario	Measured Noise Level $L_{Aeq(30min)}$, dB(A), (measurement time) (b)	Averaged Background Level $L_{Aeq(5min)}$, dB(A), (measurement time) (a)	Difference between Measured Noise Level and Background Level, dB(A), (< 3.0 or >= 3.0)
	Evening Time	56.8 (00:12 – 00:42)		
	Night-time	55.5 (00:46 – 01:16) 55.8 (01:16 – 01:46)	54.4 (02:24 – 02:34)	< 3.0
SS15	Day and Evening Time	47.7 (23:43 – 00:13) 47.6 (00:13 – 00:43)	49.0 (22:33 – 22:43)	< 3.0
	Night-time	48.4 (00:50 – 01:20) 48.4 (01:20 – 01:50)	48.8 (02:25 – 02:35)	< 3.0
SS11a	Day and Evening Time	48.3 (23:52 – 00:22) 48.3 (00:22 – 00:52)	46.9 (23:15 – 23:33)	< 3.0
	Night-time	47.6 (00:55 – 01:25) 45.5 (01:25 – 01:55)	46.7 (02:43 – 02:53)	< 3.0
SS20	Day and Evening Time	57.1 (23:42 – 00:12) 57.3 (00:14 – 00:44)	57.5 (23:04 – 23:15)	< 3.0
	Night-time	57.1 (00:46 – 01:16) 57.1 (01:17 – 01:47)	57.5 (02:24 – 02:35)	< 3.0

Note:

- (a) The noise levels at NSRs were dominated either by community noise or road traffic noise; the fixed plants from the ventilation buildings and the plant buildings were not considered as significant noise sources at the NSR.
- (b) The scenarios were arranged for the purpose of testing and commissioning only. The scenario under “day and evening time” would not happen after 2300 during the operation phase.

As the differences between measured noise levels and background levels are all less than 3.0 dB(A), it was unable to obtain reliable corrected noise levels at the NSRs and corrections for tonality, impulsiveness or intermittency were therefore not applicable.

5 Conclusions

To fulfil the XRL EP condition 2.36, the fixed plant noise verification were undertaken and the measurement results indicated all the fixed plant noise levels in MPV, NTV, SMV, SPN and SPS are in compliance with the fixed plant noise criteria.

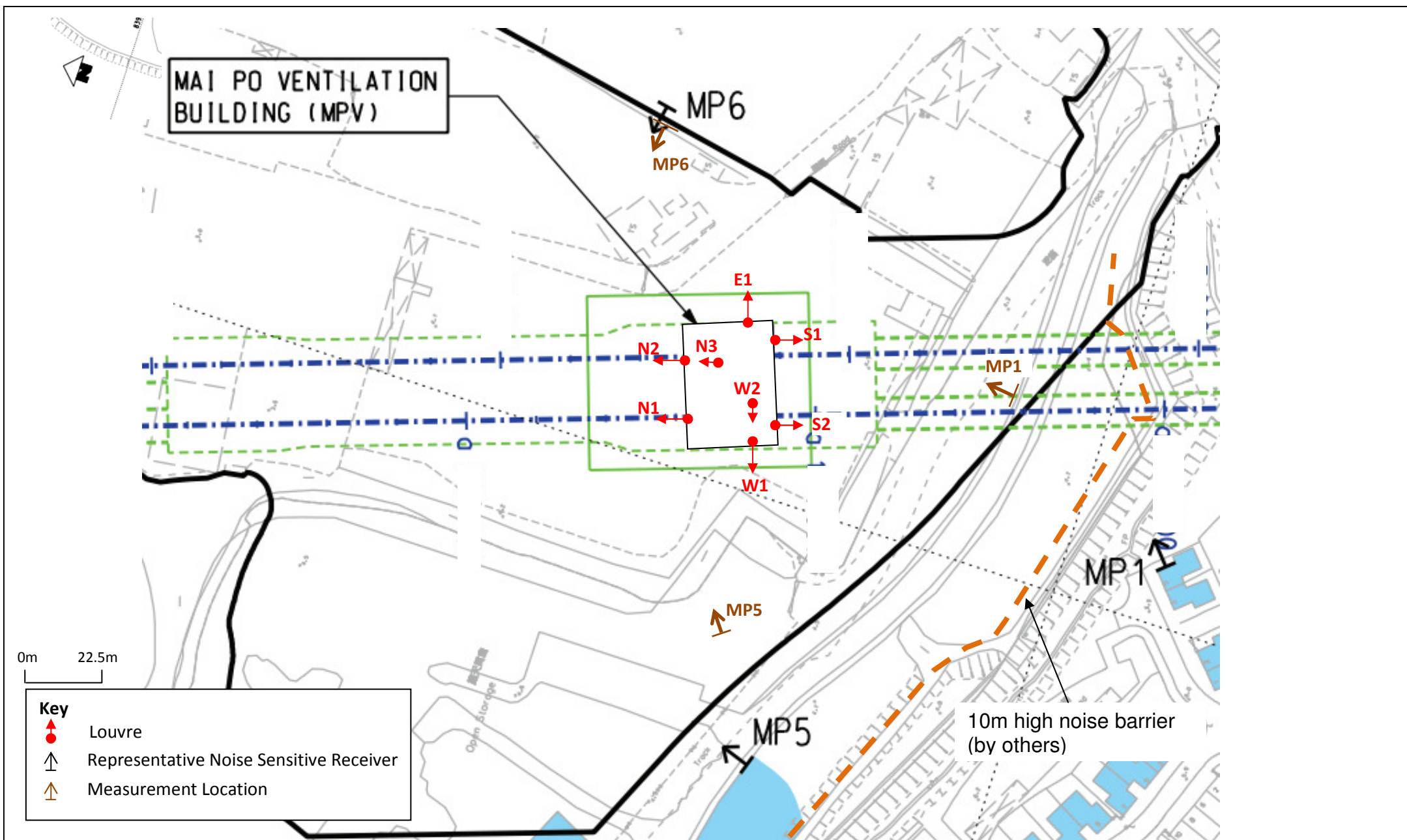


Figure 2.1 – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at MPV

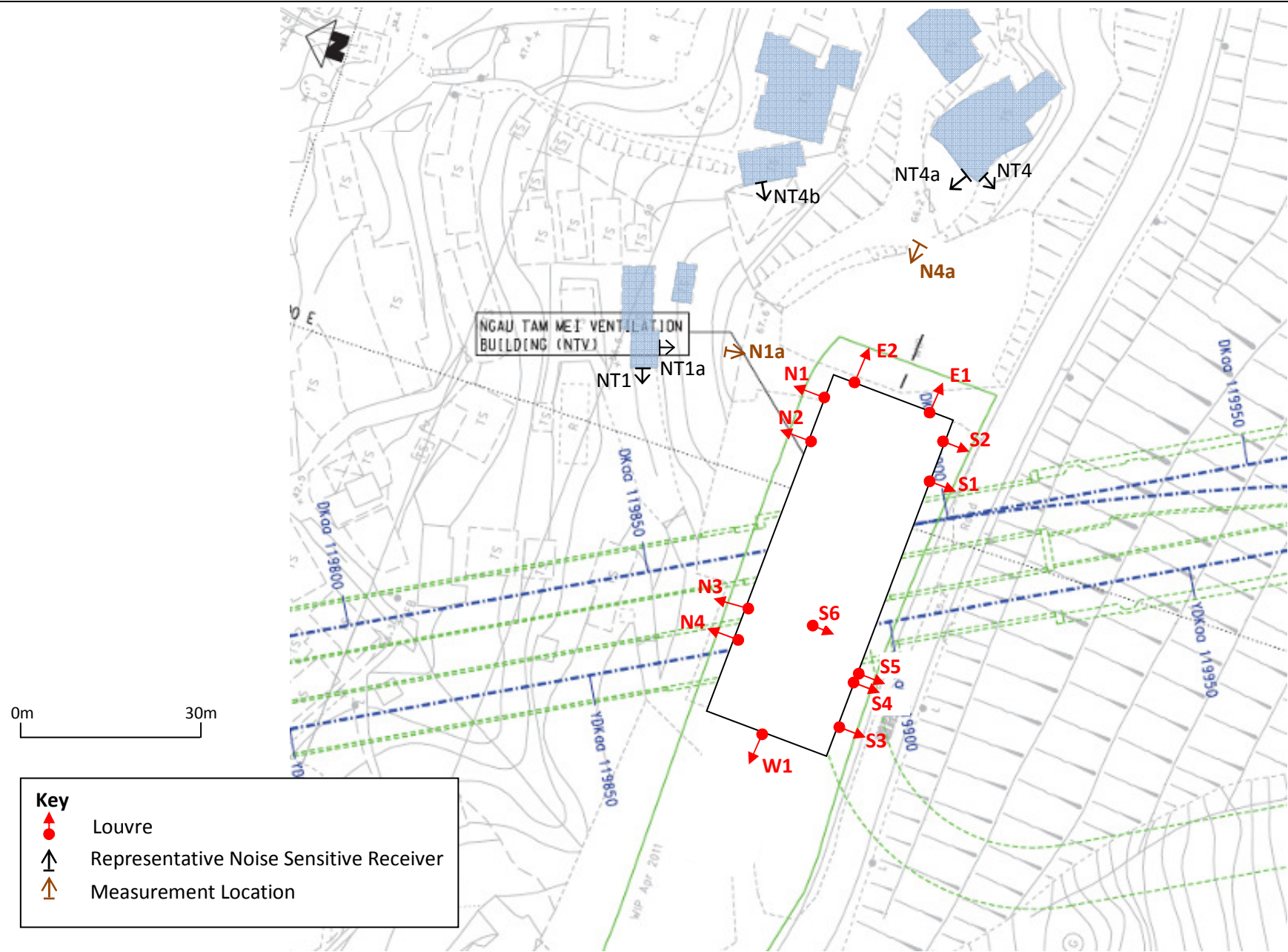


Figure 2.2 – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at NTV

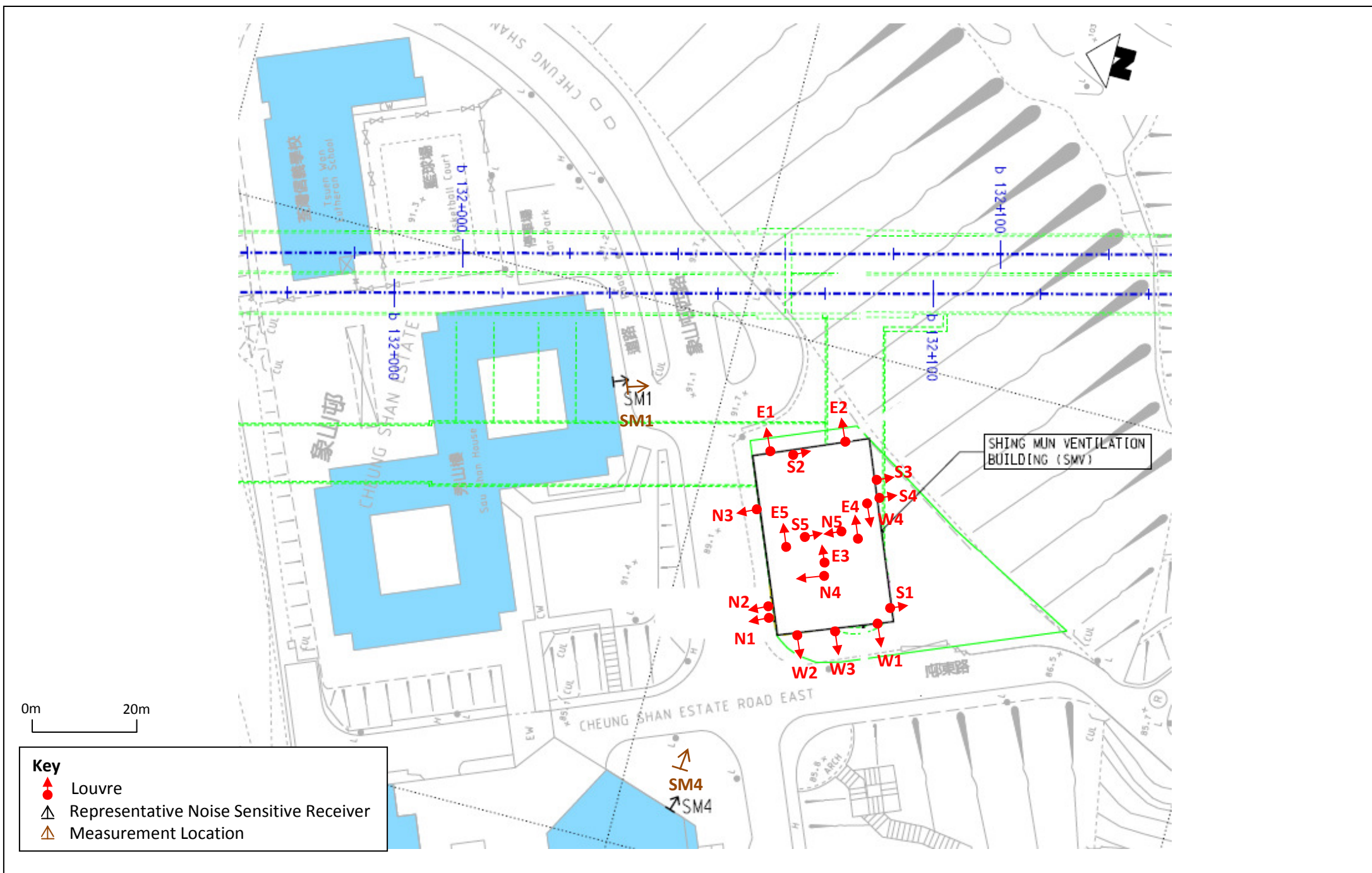


Figure 2.3 – Site layout, Noise Sensitive Receiver (NSR) and Fixed Plant Sources at SMV

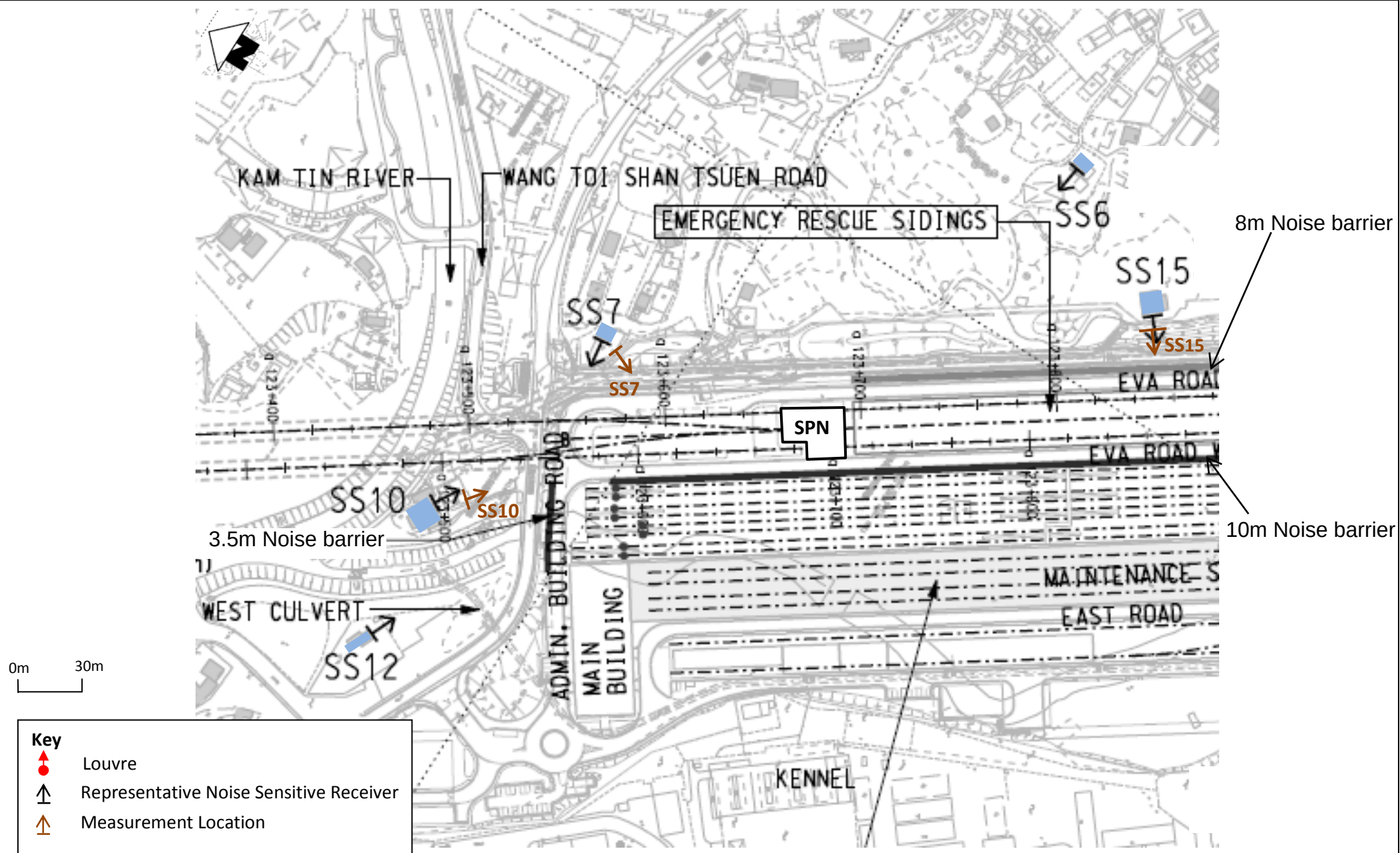


Figure 2.4 – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at SPN

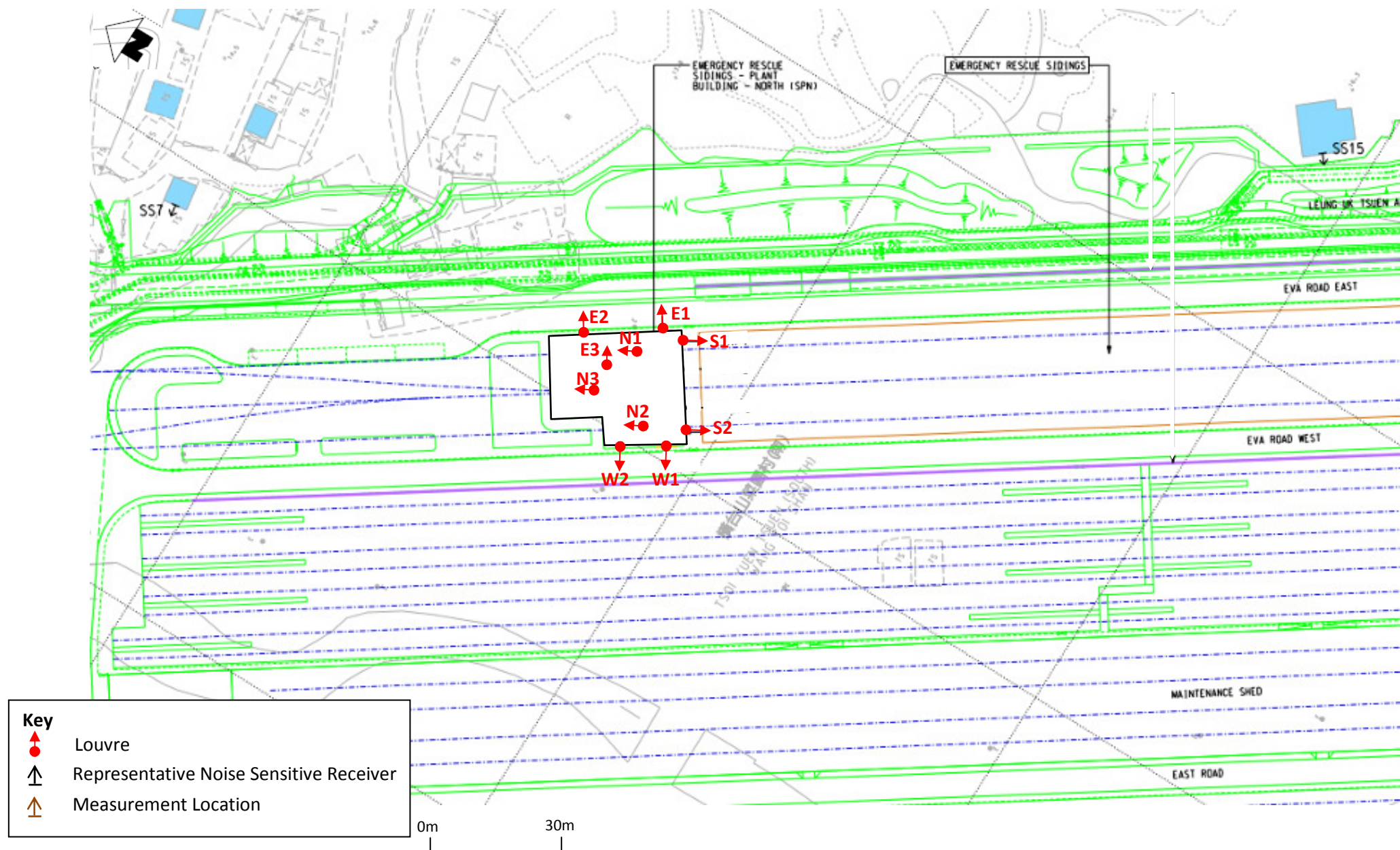


Figure 2.4a – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at SPN

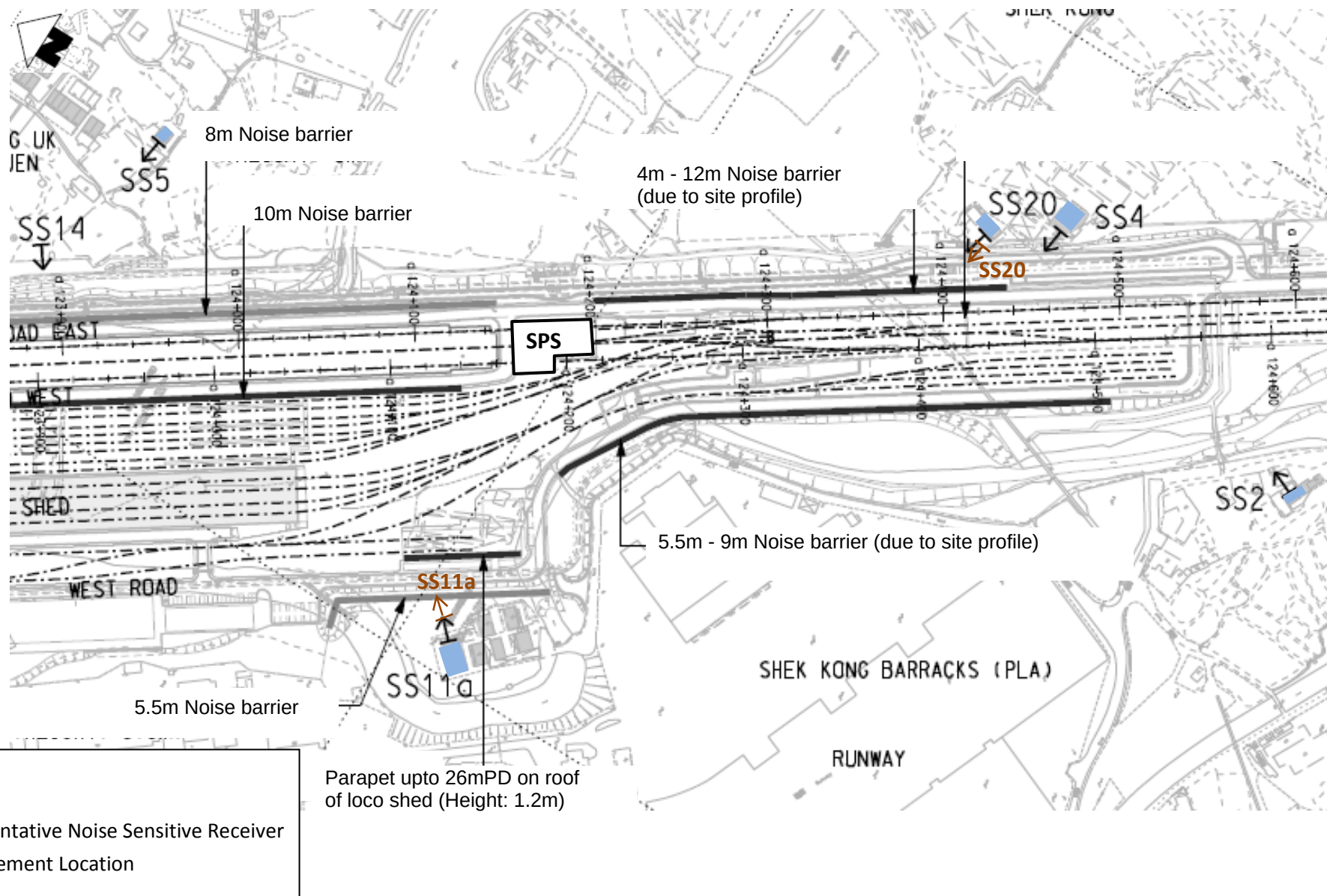


Figure 2.5 – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at SPS

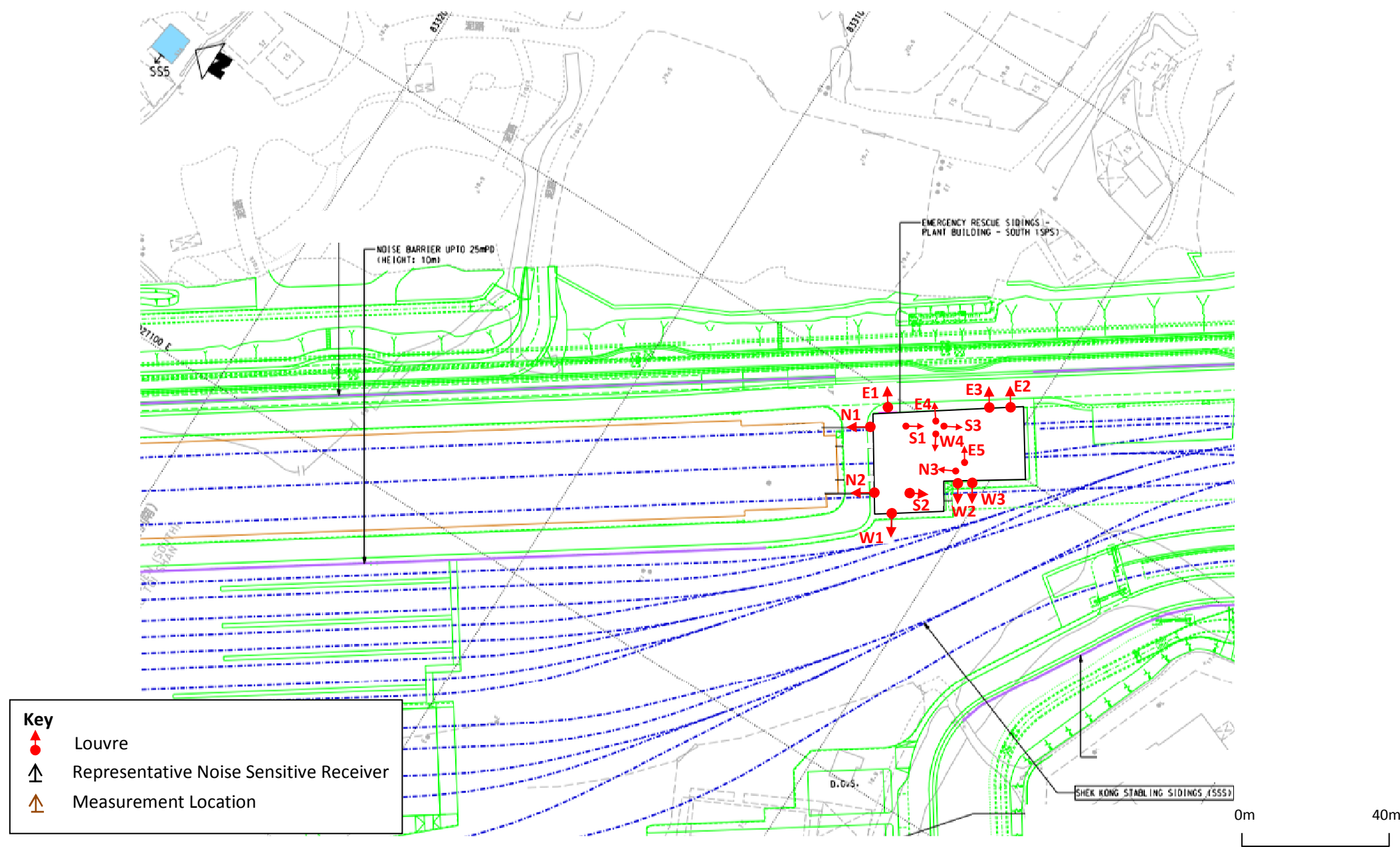


Figure 2.5a – Representative Noise Sensitive Receiver (NSR), Noise Measurement Location and Fixed Plant Sources at SPS

Appendix A1 –Measurement Methodology



XRL Fixed Plant Noise Test Plan

BY : MTR XRL Env Team

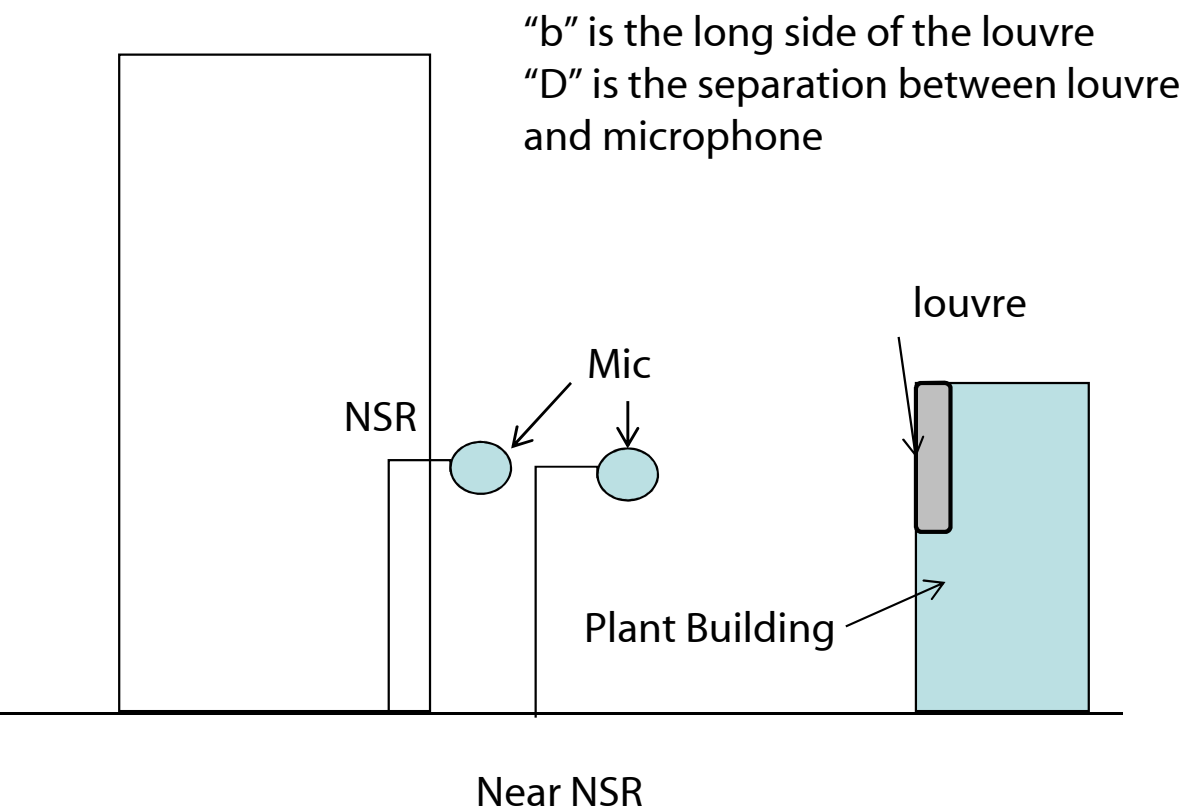
Summary of Testing Methodology

Method	Standard	No of repeated measurement	No of measurement point	Measurement distance, D	To Verify
Method 1 (NSR Method)	NCO - TM	3 sets of Leq 1min	Depend on number of NSRs nearby	At the most affected NSR or near NSR	ANL-5 or Background Prevailing
Method 2 (Far Field Method)	Basic Acoustic Principle	3 sets of Leq 1min	1 (for louvre/plant with uniform plane source)	$D \geq 2b$ and roundup to integer	ANL-5 or Background Prevailing
Method 3 (Near Field Method)	Developed based on ISO3746:2010	1 set of Leq 10s ^(a) /1min	Depend on the size of the louvre/plant and the measurement distance should follow guideline in ISO3746	At least 1m from the louvre opening/plant (unless otherwise specified)	ANL-5 or Background Prevailing

Note :

(a) If fixed plant items are operated at their noisiest operating modes and are steady during measurement, 10-second will be adopted for the duration of measurement.

Method 1 – Sound Pressure Level at NSR or Near NSR for louvre or Plant

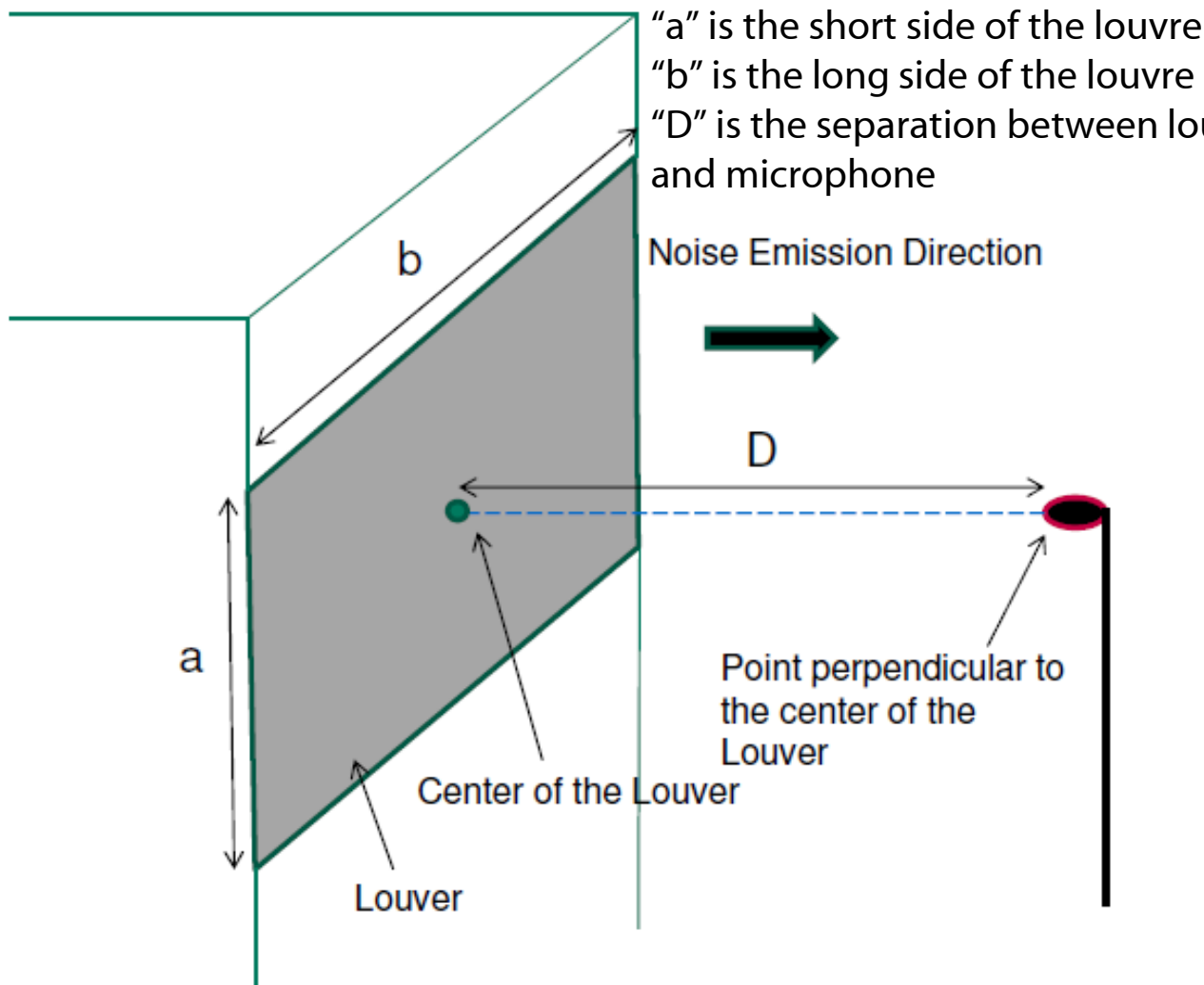


- Based on NCO - TM
- The locations of measurement points are depended on the site situation
- 3.0 dB façade correction should be considered if the location of measurement point is not at assessment point as defined in NCO-TM
- "D" must be greater than 2b and roundup to integer
- Detail calculation of the SPL should refer to the NCO-TM.
- Background noise level (BGL) should be taken for determination of background correction (BG)
- If the difference between the BGL and measured noise level (MNL) is less than 3.0 dB, BG should be capped to 3.0 dB

$$\text{Background corrected SPL} = \text{Mean } L_{Aeq1min} + BG - [20\log(D) + 8] \text{ (if applicable) + façade correction (if applicable)}$$

if the difference between the maximum and minimum $L_{eq} > 1\text{dB(A)}$; maximum L_{eq} would be adopted as a conservative approach

Method 2 – Far Field Sound Power Testing Method for louvre



"a" is the short side of the louvre
"b" is the long side of the louvre
"D" is the separation between louvre
and microphone

Noise Emission Direction

D

Point perpendicular to
the center of the
Louver

Center of the Louver

Louver

- Based on basic acoustic principle
- "D" must be greater than 2b and roundup to integer, i.e.: $D \geq 2b$
- The microphone must point to the center of the louvre.
- At least 3 sets of L_{Aeq} , 1 min should be obtained
- Background noise level (BGL) should be taken for determination of background correction (BG)
- If the difference between the BGL and measured noise level (MNL) is less than 3.0 dB, BG should be capped to 3.0 dB

$$SWL \text{ (Sound Power Level)} = \text{Mean measured } L_{Aeq1min} + 20 \log (D, \text{center}) + 8 + BG$$

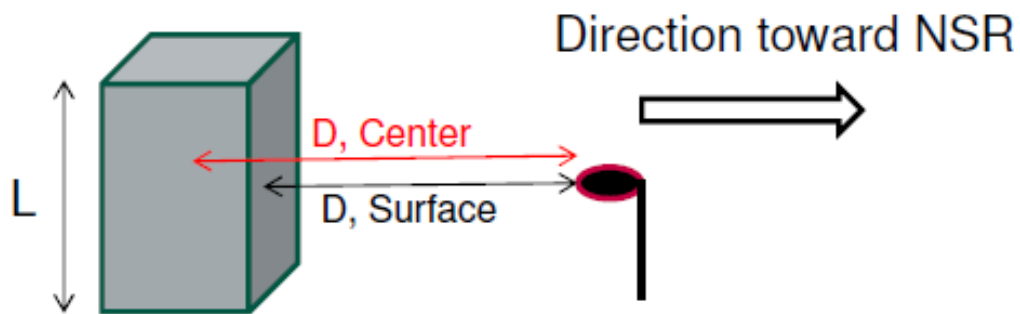
if the difference between the maximum and minimum $L_{eq} > 1 \text{ dB(A)}$; maximum L_{eq} would be adopted as a conservative approach

Method 2 – Far Field Sound Power Testing Method for Plant

“L” is the longest side of the plant item

“D, Center” is the separation between center of the plant item and microphone

“D, Surface” is the separation between surface of the plant item and microphone

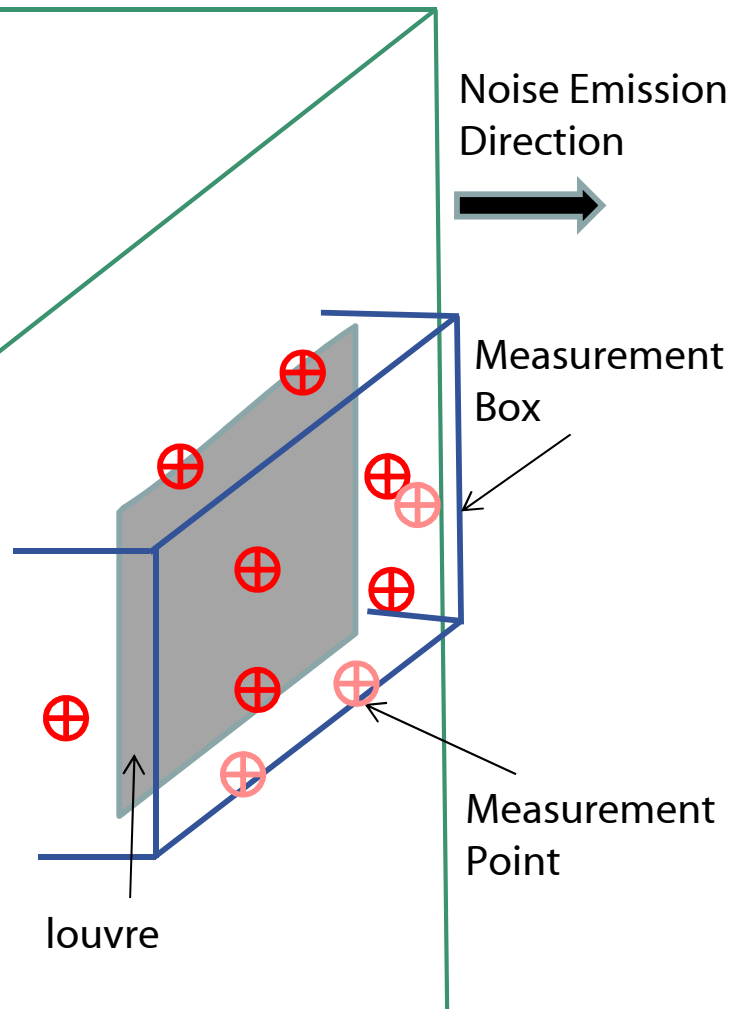


- “D, Surface” must be greater than twice of L (2L) and roundup to integer
- The microphone must be pointing to the center of the plant
- At least 3 sets of LAeq, 1min should be obtained at each measurement point.
- Background noise level (BGL) should be taken for determination of background correction (BG)
- If the difference between the BGL and measured noise level (MNL) is less than 3.0 dB, BG should be capped to 3.0 dB

$$\text{SWL (Sound Power Level)} = \text{Mean measured } L_{\text{Aeq1min}} + 20 \log (D, \text{center}) + 8 + \text{BG}$$

if the difference between the maximum and minimum Leq > 1dB(A); maximum Leq would be adopted as a conservative approach

Method 3 – Near Field Sound Power Testing Method for louvre



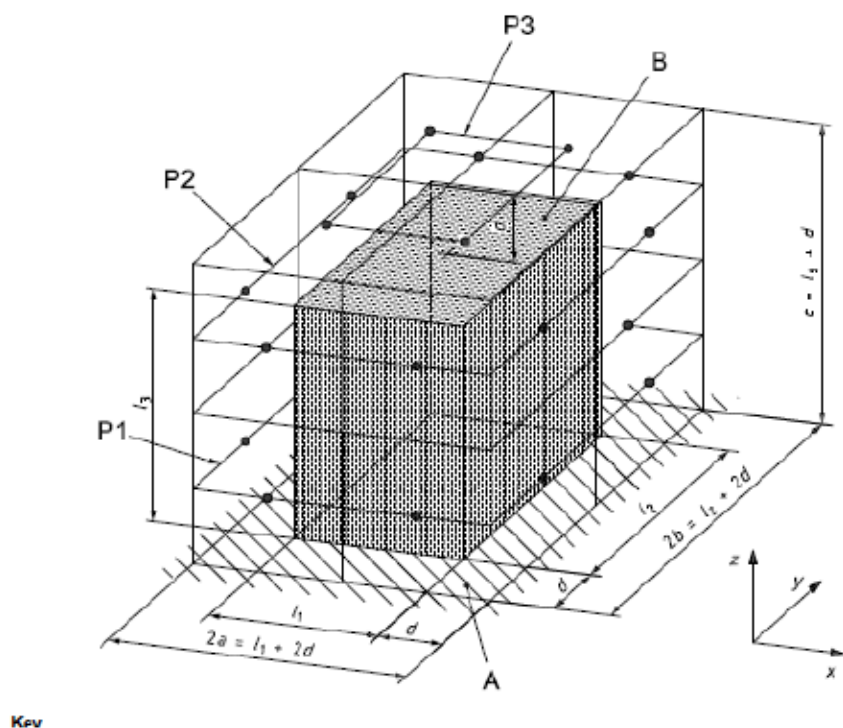
- Based on the principle of ISO3746 – 2010
- First step is to determine a hypothetical measurement surface /box with not less than 1m separation from the louvre.
- Second, determine the location of measurement point in accordance with the latest edition of ISO3746.
- Background noise level (BGL) should be taken at each measurement point for determination of background correction (K1A)
- At least 1 set of L_{eq} , 10s/1min should be obtained at each measurement point
- Extra localized microphone positions on the measurement surface in the region of high noise radiation would be considered following relevant procedures in ISO 3744
- If the difference between the BGL and measured noise level (MNL) is less than 3.0 dB, K1A should be capped to 3.0 dB
- The measurement distance would be reduced if necessary to obtain higher MNL for valid measurement results
- Details calculation of the SWL should refer to the latest edition of ISO3746.

SWL = Mean L_{Aeq} over all measurement points + 10 log (total surface area over the measurement box) - K1A - K2A (sound absorption and reflection correction)

K1A refers to background noise correction factor

K2A refers to environmental correction for sound absorption and reflection

Method 3 – Near Field Sound Power Testing Method for Plant



- Based on ISO 3746
- The locations of measurement points are depended on the size of the plant, which cannot be easily generalised (See figure on the left for example).
- Extra localized microphone positions on the measurement surface in the region of high noise radiation would be considered following relevant procedures in ISO 3744
- If the difference between the BGL and measured noise level (MNL) is less than 3.0 dB, K1A should be capped to 3.0 dB
- The measurement distance would be reduced if necessary to obtain higher MNL for valid measurement results
- Detail calculation of the SWL should refer to the latest edition of ISO 3746.

SWL = Mean L_{Aeq} over all measurement points + 10 log (total surface area over the measurement box) - K1A - K2A (sound absorption and reflection correction)

K1A refers to background noise correction factor

K2A refers to environmental correction for sound absorption and reflection

End

Appendix A2 – Calibration Certificates



Calibration Certificate

Certificate No. **704083**

Page **1** of **4** Pages

Customer : 宏業承造有限公司

Address : 沙田火炭坳背灣街61-63號盈力工業大廈203室

Order No. : Q71682

Date of receipt : 8-May-17

Item Tested

Description : Sound Level Meter

Manufacturer : CASELLA

Model : CEL-63X

I.D. : CBSM0103

Serial No. : 5044655

Test Conditions

Date of Test : 11-May-17

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

Supply Voltage : --

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : Z01, IEC 61672, IEC 61260.

Test Results

All results were within the IEC 61672 Type 1 or IEC 61260 Class 1 specification.

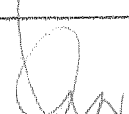
The results are shown in the attached page(s).

Main Test equipment used:

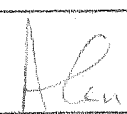
<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	701036	NIM-PRC & SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : 

Kin Wong

Approved by : 

Alan Chu

Date: 11-May-17

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8846

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Calibration Certificate

Certificate No. 704083

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Results :

1. Self-generated noise: 0.2 dBA (Mfr's Spec (Electrical) ≤ 17.5 dBA)
2. Acoustical signal test

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
0-140	A	F	OFF	94.0	93.8
		S	OFF		93.8
	C	F	OFF		94.0
	Z	F	OFF		93.8
	A	F	1/1		93.8
	A	F	1/3		93.8
	A	F	OFF	114.0	113.8
		S	OFF		113.8
	C	F	OFF		113.8
	Z	F	OFF		113.8
	A	F	1/1		113.9
	A	F	1/3		113.8

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.3 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.4	- 39.4 dB, ± 2 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.1	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.2	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.3	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.9	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.4	- 1.1 dB, + 2.1 dB $\sim$ -3.1 dB
16 kHz	-9.5	- 6.6 dB, + 3.5 dB $\sim$ -17.0 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 704083

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4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	93.8 (Ref.)	--	± 0.4 dB
C	94.0	94.0	+0.2	
Z	94.0	93.8	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	93.8 (Ref.)	--	± 0.3 dB
Slow	94.0	93.8	0.0	
Time-averaging	94.0	93.8	0.0	

Uncertainty : ± 0.1 dB

5. Filter Characteristics

5.1 1/1 - Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 (dB)
125 Hz	-61.5	< - 61
250 Hz	-43.7	< - 42
500 Hz	-21.2	< - 17.5
707 Hz	-3.7	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	-3.8	- 2 ~ - 5
2 kHz	-24.2	< - 17.5
4 kHz	-66.0	< - 42
8 kHz	-62.1	< - 61

Uncertainty : ± 0.25 dB



Calibration Certificate

Certificate No. 704083

Page 4 of 4 Pages

5.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 (dB)
326 Hz	-61.3	< - 61
530 Hz	-46.3	< - 42
772 Hz	-22.1	< - 17.5
891 Hz	-3.6	+ 0.3 ~ - 5.0
1 kHz (Ref)	- -	- -
1.122 kHz	-3.6	+ 0.3 ~ - 5.0
1.296 kHz	-23.3	< - 17.5
1.887 kHz	-50.7	< - 42
3.070 kHz	-72.5	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1029 hPa

4. Preamplifier model : CEL-495 , S/N : 002374.

5. Firmware Version: 129-08

6. Power Supply Check: OK

7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Calibration Certificate

Certificate No. 704084

Page 1 of 2 Pages

Customer : 宏業承造有限公司

Address : 沙田火炭坳背灣街61-63號盈力工業大廈203室

Order No. : Q71682

Date of receipt : 8-May-17

Item Tested

Description : Sound Level Calibrator

Manufacturer : Casella

I.D. : CBSM0103

Model : CEL-120/1

Serial No. : 5060836

Test Conditions

Date of Test : 11-May-17

Supply Voltage : --

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

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: IEC 60942, F21, Z02.

Test Results

All results were within the IEC 60942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	605758	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	701036	NIM-PRC & SCL-HKSAR
S041	Universal Counter	607883	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by :

Kin Wong

Approved by :

Alan Chu

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 11-May-17



Calibration Certificate

Certificate No. 704084

Page 2 of 2 Pages

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94	94.2	± 0.4 dB
114	114.2	

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB

IEC 60942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.000	± 1 %

Uncertainty : ± 3.6 x 10⁻⁶

4. Total Distortion : < 0.2 %

IEC 60942 Class 1 Spec. : < 3 %

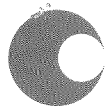
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1029 hPa.

----- END -----



Calibration Certificate

Certificate No. **804865**

Page 1 of 4 Pages

Customer : ATAL Engineering Ltd

Address : 13/F., Island Place Tower, 510 King's Road, North Point, H. K.

Order No. : Q81893

Date of receipt : 16-May-18

Item Tested

Description : Sound Level Meter

Manufacturer : CASELLA

I.D. : --

Model : CEL-63X

Serial No. : 5044655

Test Conditions

Date of Test : 18-May-18

Supply Voltage : --

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

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : Z01, IEC 61672, IEC 61260.

Test Results

All results were within the IEC 61672 Type 1 or IEC 61260 Class 1 specification. (where applicable)

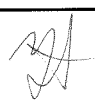
The results are shown in the attached page(s).

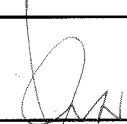
Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C170120	SCL-HKSAR
S240	Sound Level Calibrator	803357	NIM-PRC & SCL-HKSAR

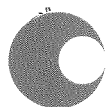
The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling,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

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : 
Elva Chong

Approved by : 
Kin Wong

Date: 18-May-18



Calibration Certificate

Certificate No. 804865

Page 2 of 4 Pages

Results :

1. Self-generated noise: 23.2 dBA

2. Acoustical signal test

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
0-140	A	F	OFF	94.0	93.3
		S	OFF		93.3
	C	F	OFF		93.3
	Z	F	OFF		93.3
	A	F	1/1		93.3
	A	F	1/3		93.3
	A	F	OFF	114.0	113.4
		S	OFF		113.4
	C	F	OFF		113.4
	Z	F	OFF		113.4
	A	F	1/1		113.4
	A	F	1/3		113.4

IEC 61672 Type 1 Spec. : ± 1.1 dB

Uncertainty : ± 0.3 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.5	- 39.4 dB, ± 2 dB
63 Hz	-26.3	- 26.2 dB, ± 1.5 dB
125 Hz	-16.3	- 16.1 dB, ± 1.5 dB
250 Hz	-8.8	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.8	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.5	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-9.5	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 804865

Page 3 of 4 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	--	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	--	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

5. Filter Characteristics

5.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 (dB)
125 Hz	-61.4	< - 61
250 Hz	-43.7	< - 42
500 Hz	-21.2	< - 17.5
707 Hz	-3.7	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	-3.8	- 2 ~ - 5
2 kHz	-24.2	< - 17.5
4 kHz	-65.4	< - 42
8 kHz	-61.9	< - 61

Uncertainty : ± 0.25 dB



Calibration Certificate

Certificate No. 804865

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5.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 (dB)
326 Hz	-61.3	< - 61
530 Hz	-46.3	< - 42
772 Hz	-22.1	< - 17.5
891 Hz	-3.6	+ 0.3 ~ - 5.0
1 kHz (Ref)	- -	- -
1.122 kHz	-3.7	+ 0.3 ~ - 5.0
1.296 kHz	-23.3	< - 17.5
1.887 kHz	-50.7	< - 42
3.070 kHz	-72.4	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 006 hPa

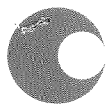
4. Preamplifier model : CEL-495 , S/N : 002374

5. Firmware Version: 129-08

6. Power Supply Check: OK

7. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Calibration Certificate

Certificate No. **804866**

Page **1** of **2** Pages

Customer : ATAL Engineering Ltd

Address : 13/F., Island Place Tower, 510 King's Road, North Point, H. K.

Order No. : Q81893

Date of receipt : 16-May-18

Item Tested

Description : Sound Level Calibrator

Manufacturer : Casella

I.D. : --

Model : CEL-120/1

Serial No. : 5060836

Test Conditions

Date of Test : 18-May-18

Supply Voltage : --

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

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: IEC 60942, F21, Z02.

Test Results

All results were within the IEC 60942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	803357	NIM-PRC & SCL-HKSAR
S041	Universal Counter	802061	SCL-HKSAR

The values given in this Calibration 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 environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.

The test results apply to the above Unit-Under-Test only

Calibrated by : 

Elva Chong

Approved by : 

Kin Wong

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 18-May-18



Calibration Certificate

Certificate No. 804866

Page 2 of 2 Pages

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.3	± 0.4 dB
114.0	114.3	

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB

IEC 60942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.000	± 1 %

Uncertainty : ± 3.6 x 10⁻⁶

4. Total Distortion : < 0.2 %

IEC 60942 Class 1 Spec. : < 4 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 006 hPa.

----- END -----

Manufacturer Calibration Certificate

The following instrument has been tested and calibrated to the manufacturer specifications.
The calibration is traceable in accordance with ISO/IEC 17025 covering all instrument functions.

- Device Type: **M2230 Measurement Microphone**
consisting of
MA220 Serial Number: 6240
Capsule Serial Number: 9498

- Certificate Issued: **10 January 2017**

- Certificate Number: **42745-6240-M2230**

- Results: **PASSED**
(for detailed report see next page)

Tested by: M.Frick

Signature:

Stamp:

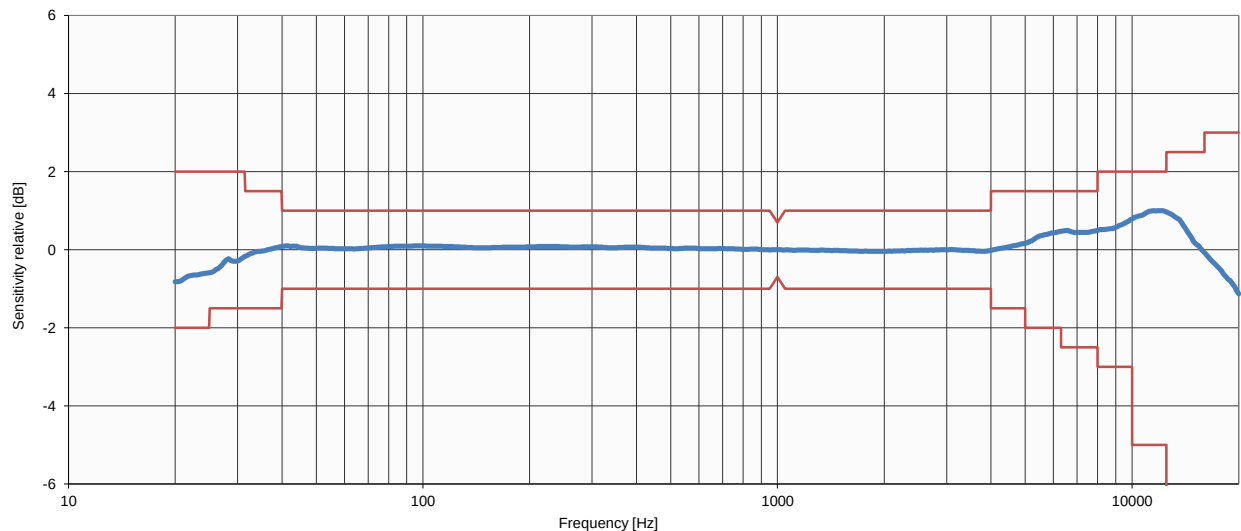


NTi Audio AG
Im alten Riet 102
LI - 9494 Schaan
www.nti-audio.com

Date: 10 January 2017
Calibration of: M2230 Measurement Microphone
MA220 Serial Number: 6240
Capsule Serial Number: 9498

- Detailed Calibration Test Results:

Frequency response: **Class 1 acc. IEC 61672**



	actual	calibration uncertainty ¹
Sensitivity @ 1 kHz, 114 dB SPL	43.3 mV/Pa	±2.85%

- Test Conditions: Temperature: 27.2 °C ±0.5 °C
Relative Humidity: 39.5 % ±2%
Air Pressure: 95.94 kPa ±0.25 kPa

- Calibration Equipment Used:

- Norsonic Sound Calibrator, Type 1251, S/No. 30930
Last Calibration: 05.12.2016, Next Calibration: 05.12.2018
Calibrated by Metas, Switzerland
- NTi Audio FX100, S/No. 11094
Last Calibration: 16.08.2016, Next Calibration: 16.08.2017
Calibrated by NTi Audio meeting product specifications
- MTG MV203, S/No. 0630 / Mic Capsule, MK221 S/No. 16502
Last Calibration: 30.11.2015, Next Calibration: 30.11.2017
Calibrated by MTG, Germany

¹ The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with the regulations of the GUM.

Manufacturer Calibration Certificate

The following instrument has been tested and calibrated to the manufacturer specifications.
The calibration is traceable in accordance with ISO/IEC 17025 covering all instrument functions.

- Device Type: **M2230 Measurement Microphone**
consisting of
MA220 Serial Number: 5011
Capsule Serial Number: 7698

- Certificate Issued: **24 March 2017**
- Certificate Number: **42818-5011-M2230**

- Results: **PASSED**
(for detailed report see next page)

Tested by: M.Frick

Signature:

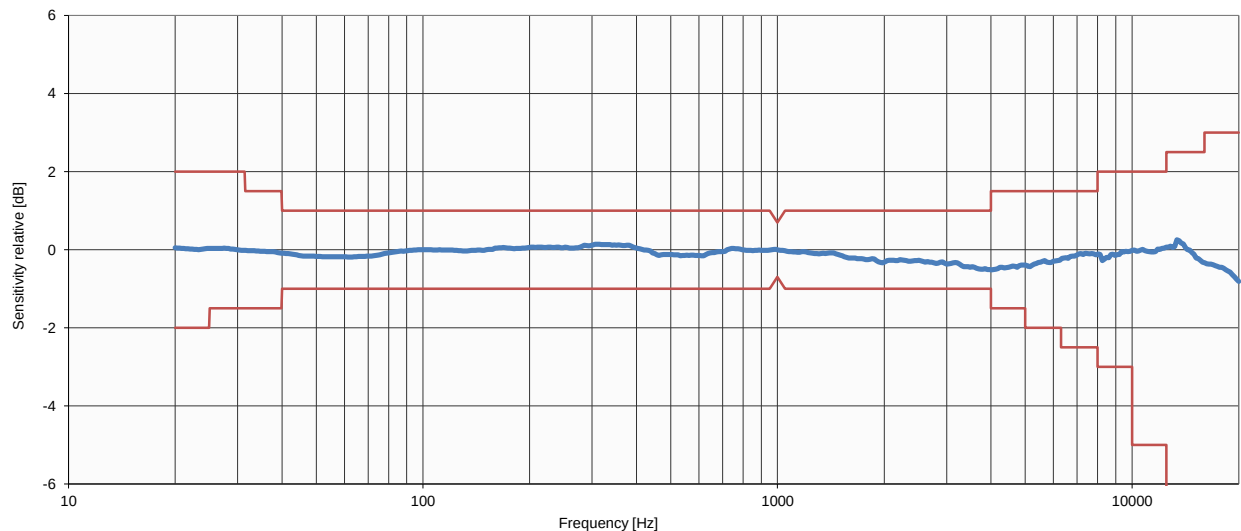
Stamp:

A handwritten signature in black ink is written over a rectangular stamp. The stamp contains the following text: 'NTi Audio AG', 'Im alten Riet 102', 'LI 9494 Schaan', and 'www.nti-audio.com'.

Date: 24 March 2017
 Calibration of: M2230 Measurement Microphone
 MA220 Serial Number: 5011
 Capsule Serial Number: 7698

- Detailed Calibration Test Results:

Frequency response: **Class 1 acc. IEC 61672**



	actual	calibration uncertainty ¹
Sensitivity @ 1 kHz, 114 dB SPL	46.5 mV/Pa	±2.85%

- Test Conditions:

Temperature:	21.1 °C	±0.5 °C
Relative Humidity:	47.2 %	±2%
Air Pressure:	97.4 kPa	±0.25 kPa

- Calibration Equipment Used:

- Norsonic Sound Calibrator, Type 1251, S/No. 30930
 Last Calibration: 05.12.2016, Next Calibration: 05.12.2018
 Calibrated by Metas, Switzerland
- NTi Audio FX100, S/No. 11094
 Last Calibration: 16.08.2016, Next Calibration: 16.08.2017
 Calibrated by NTi Audio meeting product specifications
- MTG MV203, S/No. 0630 / Mic Capsule, MK221 S/No. 16502
 Last Calibration: 30.11.2015, Next Calibration: 30.11.2017
 Calibrated by MTG, Germany

¹ The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with the regulations of the GUM.

Manufacturer Calibration Certificate

The following instrument has been tested and calibrated to the manufacturer specifications.
The calibration is traceable in accordance with ISO/IEC 17025 covering all instrument functions.

- Device Type: **M2230 Measurement Microphone**
consisting of
MA220 Serial Number: 5617
Capsule Serial Number: 8507

- Certificate Issued: **24 March 2017**
- Certificate Number: **42818-5617-M2230**

- Results: **PASSED**
(for detailed report see next page)

Tested by: M.Frick

Signature:

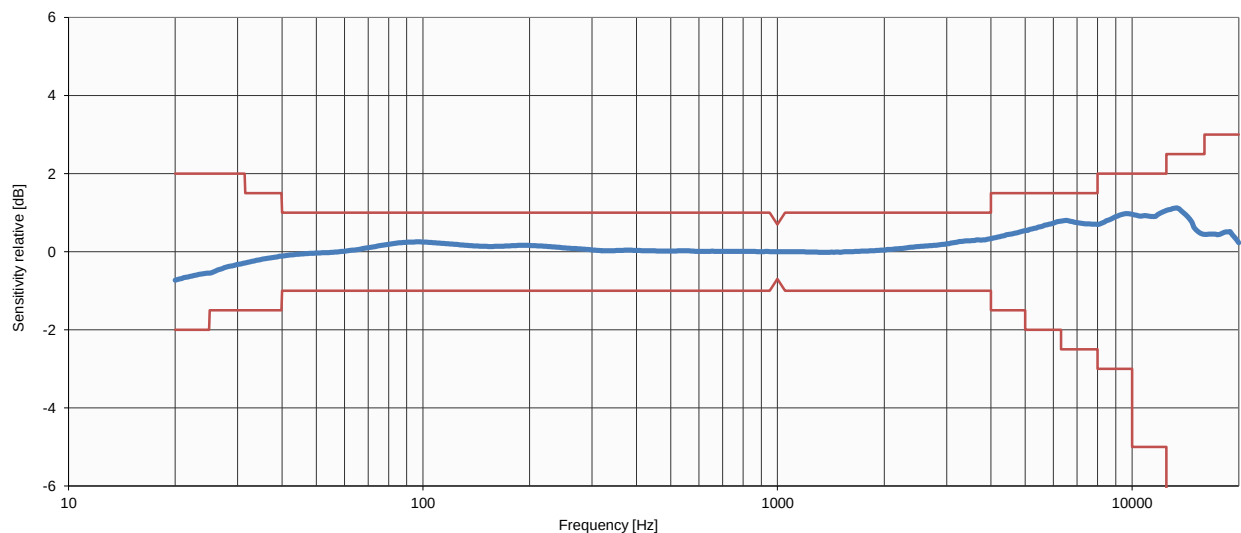
Stamp:

A handwritten signature in black ink is written over a rectangular stamp. The stamp contains the following text: 'NTi Audio AG', 'Im alten Riet 102', 'LI 9494 Schaan', and 'www.nti-audio.com'.

Date: 24 March 2017
 Calibration of: M2230 Measurement Microphone
 MA220 Serial Number: 5617
 Capsule Serial Number: 8507

- Detailed Calibration Test Results:

Frequency response: **Class 1 acc. IEC 61672**



	actual	calibration uncertainty ¹
Sensitivity @ 1 kHz, 114 dB SPL	48.1 mV/Pa	±2.85%

- Test Conditions:

Temperature:	24.6 °C	±0.5 °C
Relative Humidity:	43.6 %	±2%
Air Pressure:	97.65 kPa	±0.25 kPa

- Calibration Equipment Used:

- Norsonic Sound Calibrator, Type 1251, S/No. 30930
 Last Calibration: 05.12.2016, Next Calibration: 05.12.2018
 Calibrated by Metas, Switzerland
- NTi Audio FX100, S/No. 11094
 Last Calibration: 16.08.2016, Next Calibration: 16.08.2017
 Calibrated by NTi Audio meeting product specifications
- MTG MV203, S/No. 0630 / Mic Capsule, MK221 S/No. 16502
 Last Calibration: 30.11.2015, Next Calibration: 30.11.2017
 Calibrated by MTG, Germany

¹ The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with the regulations of the GUM.



Calibration Chart

BSWA TECH

BSWA-IV-C021-03-0048A

Sound Calibrator model CA111.....
Serial Number 00317.....
Appearance OK.....
Power Supply 1.5V LR6 (AA battery) x2.....
Sound Pressure Level 93.92 / 114.04 dB.....
Frequency 1000.5 / 1000.5 Hz.....
THD (@1000Hz) 0.23 / 0.80 %.....

Copying and using select parts, or tampering with this document without the permission of BSWA is forbidden!

BSWA Technology Ltd.

www.bswa-tech.com

This equipment was calibrated at the following ambient conditions:

Temperature: 23 °C
Humidity: 35 %RH
Pressure: 1.025 hPa

This equipment is qualified!

C.R.

Calibrated

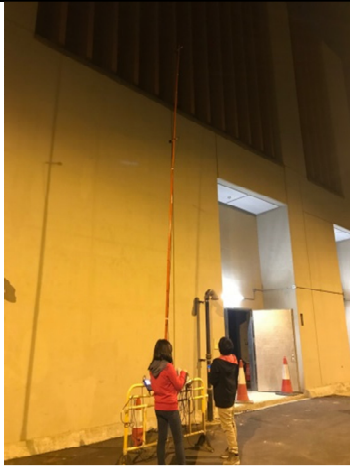
2016-11-15

Date



Appendix A3 – Fixed Plant Noise Summary

Measurement Photos



MPV



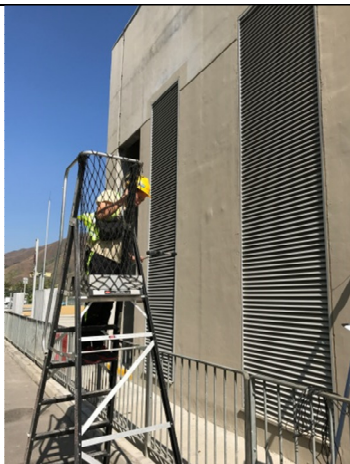
NTV



SMV



SPN



SPS

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
MP1	House 5 Phase A Royal Palms	Ventilation Shaft and Building Service	ECS duct	N1	L	Y	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	141	5	14	29	60	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	150	5	15			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	136	10	16			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	130	5	22			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	121	5	23			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	123	0	23			
			Air Release Louvre	W2	L	Y	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	123	0	22			
MP5	Proposed Comprehensive Development at Wo Shang Wai	Ventilation Shaft and Building Service	ECS duct	N1	L	Y	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	101	10	12	34	51	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	116	10	13			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	125	10	17			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	119	0	27			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	97	0	30			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	88	0	26			
			Air Release Louvre	W2	L	Y	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	97	0	24			
MP6	Planned village house at Village Zone	Ventilation Shaft and Building Service	ECS duct	N1	L	Y	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	88	0	23	35	60	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	73	0	27			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	68	0	32			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	75	5	26			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	95	5	25			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	99	10	15			
			Air Release Louvre	W2	L	Y	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	86	10	15			

Remarks:

(i) Tunnel ventilation would be operated for both northbound (N/B) and southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
MP1	House 5 Phase A Royal Palms	Ventilation Shaft and Building Service	ECS duct	N1	L	N ⁽ⁱⁱ⁾	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	141	-	-	28	50	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	150	5	15			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	136	10	16			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	130	5	22			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	121	5	23			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	123	0	23			
			Air Release Louvre	W2	L	N ⁽ⁱⁱ⁾	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	123	-	-			
MP5	Proposed Comprehensive Development at Wo Shang Wai	Ventilation Shaft and Building Service	ECS duct	N1	L	N ⁽ⁱⁱ⁾	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	101	-	-	33	45	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	116	10	13			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	125	10	17			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	119	0	27			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	97	0	30			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	88	0	26			
			Air Release Louvre	W2	L	N ⁽ⁱⁱ⁾	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	97	-	-			
MP6	Planned village house at Village Zone	Ventilation Shaft and Building Service	ECS duct	N1	L	N ⁽ⁱⁱ⁾	1.20	1.00	2	3	n/a	49.9	42.4	7.5	49	67	88	-	-	35	50	0
			FS control room	N2	L	Y	0.80	0.80	2	2	n/a	54.8	44.4	10.4	54.8	69	73	0	27			
			LV switch room	N3	L	Y	7.00	3.00	3	1	73.0	54.9	49.9	5	53.2	72	150	5	18			
			Tunnel ventilation shaft	E1	L	Y	12.68	5.93	3	1	161.5	54.4	51.1	3.3	51.7	74	68	0	32			
			Tunnel ventilation shaft	S1	L	Y	8.28	5.93	3	1	117.8	55.1	49.7	5.4	53.6	74	75	5	26			
			Tunnel ventilation shaft	S2	L	Y	9.48	5.93	3	1	129.7	54.8	46.9	7.9	54	75	95	5	25			
			Tunnel ventilation shaft	W1	L	Y	13.00	5.93	3	1	164.7	50.2	46.3	3.9	47.9	70	99	10	15			
			Air Release Louvre	W2	L	N ⁽ⁱⁱ⁾	1.20	0.60	3	1	19.9	57.6	52.8	4.8	55.9	69	86	-	-			

Remarks:

(i) Not used

(ii) The plant would be operated during day and evening time only under normal scenario.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
						Width	Height															
NT1	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	30	-	-	42	55	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	30	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	43	0	23			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	45	0	35			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	45	5	34			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	33	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	10	29			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	10	29			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	67	10	19			
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	62	10	20			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	62	10	25			
NT1a	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	10	39	43	55	0.0
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	62	10	31			
			Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	29	-	-			
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	29	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	45	0	23			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	48	0	34			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	43	0	39			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	32	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	49	10	29			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	49	10	29			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	70	10	19			
NT4	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	63	10	20	44	55	0
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	63	10	25			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	10	39			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	65	10	31			
			Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	44	-	-			
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	86	5	24			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	5	22			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	5	27			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	5	40			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	97	10	27			
NT4a	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	42	-	-	44	55	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	85	5	24			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	39	0	40			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	39	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	5	34			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	5	35			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	5	22			
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	5	22			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	5	27			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	5	40			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	96	10	27			
NT4b	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	36	-	-	40	55	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	43	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	70	0	19			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	75	0	30			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	44	5	34			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	35	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	55	10	28			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	10	29			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	90	10	17			
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	81	10	18			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	81	10	23			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	70	10	36			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	90	10	28			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
NT1	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	30	0	37	43	55	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	30	0	34			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	43	0	23			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	45	0	35			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	45	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	33	5	32			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	-	-			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	67	10	19			
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	62	10	20			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	62	10	25			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	10	39			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	62	10	31			
NT1a	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	29	0	38	44	55	0.0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	29	0	35			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	45	0	23			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	48	0	34			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	43	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	32	0	37			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	49	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	49	-	-			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	70	10	19			
			LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	63	10	20			
			LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	63	10	25			
			Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	10	39			
			UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	65	10	31			
NT4	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	44	5	29	42	55	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	5	25			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	86	5	24			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	40	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	40	0	35			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	-	-			
			LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	5	22			

NSR	Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
						Width	Height														
		LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	5	22			
		LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	5	27			
		Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	5	40			
		UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	97	10	27			
NT4a	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	42	5	30	42	55	0
		Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	5	25			
		CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
		ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	85	5	24			
		Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	39	-	-			
		Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	39	0	35			
		Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
		Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	-	-			
		LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	5	22			
		LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	5	22			
		LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	5	27			
		Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	5	40			
		UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	96	10	27			
NT4b	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	36	0	36	41	55	0
		Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	43	0	31			
		CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	70	0	19			
		ECS duct	N4	L	Y	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	75	0	30			
		Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	44	-	-			
		Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	35	5	31			
		Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	55	-	-			
		Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	-	-			
		LV switch room	S3	L	Y	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	90	10	17			
		LV switch room	S4	L	Y	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	81	10	18			
		LV switch room	S5	L	Y	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	81	10	23			
		Exhaust Air Duct	S6	L	Y	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	70	10	36			
		UPS Room Fresh Air Intake	W1	L	Y	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	90	10	28			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants
Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
NT1	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	30	-	-	36	44	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	30	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	43	0	23			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	45	-	-			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	45	5	34			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	33	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	10	29			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	10	29			
			LV switch room	S3	L	N ⁽ⁱⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	67	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	62	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	62	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	62	-	-			
NT1a	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	29	-	-	40	44	0.0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	29	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	45	0	23			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	48	-	-			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	43	0	39			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	32	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	49	10	29			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	49	10	29			
			LV switch room	S3	L	N ⁽ⁱⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	70	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	63	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	63	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	65	-	-			
NT4	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	44	-	-	42	44	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	86	-	-			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	40	0	40			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	40	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	5	34			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	5	35			
			LV switch room	S3	L	N ⁽ⁱⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	-	-			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (v)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
		LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	-	-				
		Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	-	-				
		UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	97	-	-				
NT4a	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	42	-	-	42	44	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	85	-	-			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	39	0	40			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	39	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	5	34			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	5	35			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	96	-	-			
NT4b	Yau Tam Mei Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	36	-	-	36	44	0
			Tunnel ventilation shaft	N2	L	N ⁽ⁱ⁾	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	43	-	-			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	70	0	19			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	75	-	-			
			Tunnel ventilation shaft	E1	L	Y	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	44	5	34			
			Tunnel ventilation shaft	E2	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	35	-	-			
			Tunnel ventilation shaft	S1	L	Y	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	55	10	28			
			Tunnel ventilation shaft	S2	L	Y	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	10	29			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	90	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	81	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	81	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	70	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	90	-	-			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) The plant would be operated during day and evening time only under normal scenario.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
						Width	Height															
NT1	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	30	0	37	40	44	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	30	0	34			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	43	0	23			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	45	-	-			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	45	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	33	5	32			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	-	-			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	67	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	62	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	62	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	62	-	-			
NT1a	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	29	0	38	42	44	0.0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	29	0	35			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	45	0	23			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	48	-	-			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	43	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	32	0	37			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	49	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	49	-	-			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	70	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	63	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	63	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	50	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	65	-	-			
NT4	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	44	5	29	36	44	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	5	25			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	86	-	-			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	40	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	40	0	35			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	-	-			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	-	-			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (v)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	97	-	-			
NT4a	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	42	5	30	37	44	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	50	5	25			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	80	5	13			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	85	-	-			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	39	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	39	0	35			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	50	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	43	-	-			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	92	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	85	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	85	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	80	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	96	-	-			
NT4b	Yau Tam Mei Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	Y	3.88	9.00	3	2	185.9	51	46.6	4.4	49	72	36	0	36	38	44	0
			Tunnel ventilation shaft	N2	L	Y	12.50	2.20	3	2	193.1	49.6	46.6	3	46.6	69	43	0	31			
			CTER	N3	L	Y	0.80	1.60	3	0.5	9.1	54.2	53.2	1	51.2	61	70	0	19			
			ECS duct	N4	L	N ⁽ⁱⁱ⁾	2.60	2.20	3	1	36.9	58.5	53.2	5.3	57	73	75	-	-			
			Tunnel ventilation shaft	E1	L	N ⁽ⁱ⁾	5.08	9.00	3	2	206.3	54.1	45.9	8.2	53.4	77	44	-	-			
			Tunnel ventilation shaft	E2	L	Y	5.08	9.00	3	2	206.3	51.5	48.5	3	48.5	72	35	5	31			
			Tunnel ventilation shaft	S1	L	N ⁽ⁱ⁾	12.51	2.20	3	2	193.2	55.5	44.6	10.9	55.5	78	55	-	-			
			Tunnel ventilation shaft	S2	L	N ⁽ⁱ⁾	3.88	9.00	3	2	185.9	55.9	46.9	9	55.3	78	50	-	-			
			LV switch room	S3	L	N ⁽ⁱⁱ⁾	3.30	2.20	3	1	41.3	54.6	39.4	15.2	54.6	71	90	-	-			
			LV switch room	S4	L	N ⁽ⁱⁱ⁾	2.10	3.80	3	1	43.6	54.6	39.4	15.2	54.6	71	81	-	-			
			LV switch room	S5	L	N ⁽ⁱⁱ⁾	1.20	3.80	3	1	36.6	60.2	39.4	20.8	60.2	76	81	-	-			
			Exhaust Air Duct	S6	L	N ⁽ⁱⁱ⁾	2.40	0.73	2	5	n/a	66.2	44.9	21.3	66.2	88	70	-	-			
			UPS Room Fresh Air Intake	W1	L	N ⁽ⁱⁱ⁾	3.00	2.00	2	6	n/a	59.3	51.8	7.5	58.4	82	90	-	-			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) The plant would be operated during day and evening time only under normal scenario.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SM1	Sau Shan House, Cheung Shan Estate	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	48	0	41	56	60	0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	48	0	24			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	30	0	42			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	50	0	22			
			Staircase pressurization fan room	N5	L	Y	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	42	0	37			
			UPS room	E1	L	Y	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	29	0	55			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	38	0	44			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	42	0	25			
			Staircase pressurization fan room 1	E4	L	Y	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	47	0	36			
			Staircase pressurization fan room 2	E5	L	Y	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	38	0	30			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	62	-	-			
			Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	30	10	39			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	48	10	37			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	48	10	37			
			Staircase pressurization fan room	S5	L	Y	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	48	10	19			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	-	-			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	57	10	26			
			SPS air release louvre	W3	L	Y	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	60	10	46			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	10	29			
SM4	Shui Hong Nursing	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	39	0	43	59	60	0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	39	0	26			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	50	0	38			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	42	0	24			
			Staircase pressurization fan room	N5	L	Y	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	48	0	35			
			UPS room	E1	L	Y	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	63	10	38			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	70	10	29			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	48	10	13			
			Staircase pressurization fan room 1	E4	L	Y	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	52	10	25			
			Staircase pressurization fan room 2	E5	L	Y	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	46	10	19			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	55	-	-			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
	Home	Service	Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	62	10	33			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	60	10	35			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	60	10	35			
			Staircase pressurization fan room	S5	L	Y	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	60	10	17			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	48	-	-			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	39	0	39			
			SPS air release louvre	W3	L	Y	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	45	0	59			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	10	29			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SM1	Sau Shan House, Cheung Shan Estate	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	48	-	-	56	60	0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	48	0	24			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	30	0	42			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	50	0	22			
			Staircase pressurization fan room	N5	L	Y	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	42	0	37			
			UPS room	E1	L	Y	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	29	0	55			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	38	0	44			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	42	0	25			
			Staircase pressurization fan room 1	E4	L	Y	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	47	0	36			
			Staircase pressurization fan room 2	E5	L	Y	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	38	0	30			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	62	10	38			
			Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	30	10	39			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	48	10	37			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	48	10	37			
			Staircase pressurization fan room	S5	L	Y	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	48	10	19			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	10	25			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	57	-	-			
			SPS air release louvre	W3	L	Y	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	60	10	46			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	10	29			
SM4	Shui Hong Nursing	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building	Tunnel ventilation shaft	N1	L	N ⁽ⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	39	-	-	59	60	0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	39	0	26			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	50	0	38			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	42	0	24			
			Staircase pressurization fan room	N5	L	Y	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	48	0	35			
			UPS room	E1	L	Y	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	63	10	38			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	70	10	29			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	48	10	13			
			Staircase pressurization fan room 1	E4	L	Y	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	52	10	25			
			Staircase pressurization fan room 2	E5	L	Y	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	46	10	19			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	55	10	39			

NSR	Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]	
						Width	Height															
	Home	Service	Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	62	10	33			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	60	10	35			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	60	10	35			
			Staircase pressurization fan room	S5	L	Y	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	60	10	17			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	48	0	37			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	39	-	-			
			SPS air release louvre	W3	L	Y	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	45	0	59			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	10	29			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (v)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SM1	Sau Shan House, Cheung Shan Estate	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	48	0	41	49	50	0.0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	48	0	24			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	30	0	42			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	50	0	22			
			Staircase pressurization fan room	N5	L	N ⁽ⁱⁱⁱ⁾	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	42	-	-			
			UPS room	E1	L	N ⁽ⁱⁱⁱ⁾	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	29	-	0			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	38	0	44			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	42	0	25			
			Staircase pressurization fan room 1	E4	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	47	-	-			
			Staircase pressurization fan room 2	E5	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	38	-	-			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	62	-	-			
			Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	30	10	39			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	48	10	37			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	48	10	37			
			Staircase pressurization fan room	S5	L	N ⁽ⁱⁱⁱ⁾	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	48	-	-			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	-	-			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	57	10	26			
			SPS air release louvre	W3	L	N ⁽ⁱⁱⁱ⁾	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	60	-	-			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	10	29			
SM4	Shui Hong Nursing	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building	Tunnel ventilation shaft	N1	L	N ⁽ⁱⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	39	0	43	47	50	0.0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	39	0	26			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	50	0	38			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	42	0	24			
			Staircase pressurization fan room	N5	L	N ⁽ⁱⁱⁱ⁾	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	48	-	-			
			UPS room	E1	L	N ⁽ⁱⁱⁱ⁾	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	63	-	-			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	70	10	29			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	48	10	13			
			Staircase pressurization fan room 1	E4	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	52	-	-			
			Staircase pressurization fan room 2	E5	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	46	-	-			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	55	-	-			

NSR	Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
						Width	Height														
Home	Service	Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	62	10	33			
		Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	60	10	35			
		Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	60	10	35			
		Staircase pressurization fan room	S5	L	N ⁽ⁱⁱ⁾	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	60	-	-			
		Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	-	-			
		Tunnel ventilation shaft	W2	L	N ⁽ⁱⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	39	0	39			
		SPS air release louvre	W3	L	N ⁽ⁱⁱ⁾	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	45	-	-			
		Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	60	0	37			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) The plant would be operated during day and evening time only under normal scenario.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (v)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
Width	Height																					
SM1	Sau Shan House, Cheung Shan Estate	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel ventilation shaft	N1	L	N ⁽ⁱⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	48	-	-	49	50	0.0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	48	0	24			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	30	0	42			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	50	0	22			
			Staircase pressurization fan room	N5	L	N ⁽ⁱⁱⁱ⁾	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	42	-	-			
			UPS room	E1	L	N ⁽ⁱⁱⁱ⁾	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	29	-	-			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	38	0	44			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	42	0	25			
			Staircase pressurization fan room 1	E4	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	47	-	-			
			Staircase pressurization fan room 2	E5	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	38	-	-			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	62	10	38			
			Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	30	10	39			
			Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	48	10	37			
			Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	48	10	37			
			Staircase pressurization fan room	S5	L	N ⁽ⁱⁱⁱ⁾	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	48	-	-			
			Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	10	25			
			Tunnel ventilation shaft	W2	L	N ⁽ⁱⁱⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	57	-	-			
			SPS air release louvre	W3	L	N ⁽ⁱⁱⁱ⁾	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	60	-	-			
			Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	48	0	39			
SM4	Shui Hong Nursing	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building	Tunnel ventilation shaft	N1	L	N ⁽ⁱⁱ⁾	9.09	12.25	2	25	n/a	46.2	42.1	4.1	44.1	80	39	-	-	45	50	0.0
			FS inlet	N2	L	Y	1.00	0.70	3	1	19.5	52.6	54.5	-1.9	49.6	63	39	0	26			
			MCC room	N3	L	Y	2.80	1.00	3	1	30.0	62.6	48.4	14.2	62.6	77	50	0	38			
			Exhaust air louvre	N4	L	Y	1.00	4.60	3	1	39.0	48.4	49.1	-0.7	45.4	61	42	0	24			
			Staircase pressurization fan room	N5	L	N ⁽ⁱⁱⁱ⁾	1.00	3.00	3	1	31.0	61.7	58.8	2.9	58.7	74	48	-	-			
			UPS room	E1	L	N ⁽ⁱⁱⁱ⁾	2.80	2.00	3	1	36.8	72.9	48	24.9	72.9	89	63	-	-			
			LV switch room	E2	L	Y	2.70	1.20	3	1	30.8	66.3	51.2	15.1	66.3	81	70	10	29			
			Fresh air louvre	E3	L	Y	2.60	2.60	3	1	39.6	49.1	49.1	0	46.1	62	48	10	13			
			Staircase pressurization fan room 1	E4	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	0.5	24.5	62.6	58.8	3.8	60.3	74	52	-	-			
			Staircase pressurization fan room 2	E5	L	N ⁽ⁱⁱⁱ⁾	2.90	3.20	3	1	45.7	53.9	52.5	1.4	50.9	67	46	-	-			
			Tunnel ventilation shaft	S1	L	Y	9.09	11.40	2	23	n/a	55.7	51	4.7	53.9	89	55	10	39			

NSR	Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ^(iv)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)]	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
						Width	Height														
Home	Service	Sprinkler & FS pump room	S2	L	Y	1.20	1.20	2	3	n/a	66.8	48.2	18.6	66.8	84	62	10	33			
		Air compressor receiver room	S3	L	Y	2.20	1.20	3	1	28.2	71	51.2	19.8	71	86	60	10	35			
		Tunnel ECS control room	S4	L	Y	3.40	1.20	3	1	34.5	70.8	51.8	19	70.8	86	60	10	35			
		Staircase pressurization fan room	S5	L	N ⁽ⁱⁱ⁾	1.00	2.20	3	1	27.0	55.9	52.5	3.4	53.2	68	60	-	-			
		Tunnel ventilation shaft	W1	L	Y	5.88	6.20	2	13	n/a	48.6	45.2	3.4	45.9	76	64	0	35			
		Tunnel ventilation shaft	W2	L	N ⁽ⁱⁱ⁾	5.88	6.20	2	13	n/a	47.6	43.2	4.4	45.6	76	39	-	-			
		SPS air release louvre	W3	L	N ⁽ⁱⁱ⁾	1.50	1.20	2	3	n/a	79.4	56.4	23	79.4	97	45	-	-			
		Track section cabin room	W4	L	Y	2.00	0.80	3	1	24.8	63.7	51.8	11.9	63.7	78	60	0	37			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) The plant would be operated during day and evening time only under normal scenario.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS6	No. 32 Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	176	-	-	39	52	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	189	10	23			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	180	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	170	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	176	0	14			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	176	0	18			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	169	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	181	0	39			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	190	10	26			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	190	10	11			
SS7	Leung Uk Tsuen Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	120	-	-	39	49	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	127	0	37			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	115	0	20			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	121	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	116	0	18			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	116	0	22			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	127	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	133	10	32			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	132	10	30			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	127	10	15			
SS10	DD110 LOT 482, Wang Toi Shan	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	205	-	-	36	49	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	203	0	33			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	200	0	15			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	208	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	198	5	8			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	203	5	12			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	213	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	212	10	27			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	204	5	31			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	194	5	16			

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS12	255 Kam Tai Road	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	258	-	-	36	49	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	253	0	31			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	255	0	13			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	263	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	258	10	1			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	255	10	5			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	255	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	259	10	26			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	252	0	34			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	247	0	19			
SS15 ^(vi)	Abandoned village house in Shek Kong	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	172	-	-	39	49	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	177	10	24			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	177	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	165	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	170	5	9			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	167	5	14			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	164	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	169	0	39			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	174	10	27			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	176	10	12			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vi) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS6	No. 32 Leung Uk Tsuen	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	176	10	24	41	52	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	189	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	180	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	170	0	35			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	176	0	14			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	176	0	18			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	169	0	40			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	181	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	190	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	190	10	11			
SS7	Leung Uk Tsuen Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	120	0	37	41	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	127	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	115	0	20			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	121	0	38			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	116	0	18			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	116	0	22			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	127	10	33			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	133	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	132	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	127	10	15			
SS10	DD110 LOT 482, Wang Toi Shan	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	205	0	33	35	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	203	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	200	0	15			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	208	5	29			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	198	5	8			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	203	5	12			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	213	10	28			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	212	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	204	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	194	5	16			

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (iv)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (iv)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS12	255 Kam Tai Road	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	258	0	31	33	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	253	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	255	0	13			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	263	10	22			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	258	10	1			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	255	10	5			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	255	10	27			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	259	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	252	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	247	0	19			
SS15 ^(vi)	Abandoned village house in Shek Kong	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	172	10	24	42	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	177	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	177	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	165	5	31			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	170	5	9			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	167	5	14			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	164	0	41			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	169	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	174	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	176	10	12			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in **Section 3.1.1** and **Appendix A1** of the Report. For Method 3, K2A was not claimed in the calculation.

(vi) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS6	No. 32 Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	176	-	-	39	45	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	189	10	23			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	180	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	170	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	176	0	14			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	176	0	18			
			Tunnel Ventilaion Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	169	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	181	0	39			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	190	10	26			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	190	10	11			
SS7	Leung Uk Tsuen Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	120	-	-	39	47	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	127	0	37			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	115	0	20			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	121	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	116	0	18			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	116	0	22			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	127	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	133	10	32			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	132	10	30			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	127	10	15			
SS10	DD110 LOT 482, Wang Toi Shan	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	205	-	-	36	47	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	203	0	33			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	200	0	15			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	208	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	198	5	8			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	203	5	12			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	213	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	212	10	27			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	204	5	31			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	194	5	16			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (v)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS12	255 Kam Tai Road	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	258	-	-	36	47	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	253	0	31			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	255	0	13			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	263	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	258	10	1			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	255	10	5			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	255	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	259	10	26			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	252	0	34			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	247	0	19			
SS15 ^(vii)	Abandoned village house in Shek Kong	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	172	-	-	39	47	0
			Tunnel Ventilation Shaft	N2	L	Y	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	177	10	24			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	177	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	165	-	-			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	170	5	9			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	167	5	14			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	164	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	169	0	39			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	174	10	27			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	176	10	12			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Not used.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vii) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS6	No. 32 Leung Uk Tsuen	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	176	10	24	41	45	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	189	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	180	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	170	0	35			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	176	0	14			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	176	0	18			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	169	0	40			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	181	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	190	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	190	10	11			
SS7	Leung Uk Tsuen Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	120	0	37	41	47	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	127	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	115	0	20			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	121	0	38			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	116	0	18			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	116	0	22			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	127	10	33			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	133	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	132	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	127	10	15			
SS10	DD110 LOT 482, Wang Toi Shan	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	205	0	33	35	47	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	203	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	200	0	15			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	208	5	29			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	198	5	8			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	203	5	12			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	213	10	28			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	212	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	204	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	194	5	16			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(v)	Calculated SWL L_{Aeq} ^(vi) [dB(A)]	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS12	255 Kam Tai Road	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	258	0	31	33	47	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	253	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	255	0	13			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	263	10	22			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	258	10	1			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	255	10	5			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	255	10	27			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	259	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	252	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	247	0	19			
SS15 ^(vii)	Abandoned village house in Shek Kong	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	5.88	2.85	2	12	N/A	54.8	45.1	9.7	54.3	84	172	10	24	42	47	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	5.86	2.85	2	12	N/A	55.3	48.5	6.8	54.3	84	177	-	-			
			Dog House	N3	L	Y	4.80	1.20	3	0.5	20.8	56	53	3	53	66	177	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	56	48.6	7.4	55.1	85	165	5	31			
			T.ECS Control Room	E2	L	Y	0.80	2.50	3	0.5	11.6	56.1	54.7	1.4	53.1	64	170	5	9			
			Dog House	E3	L	Y	2.80	1.20	3	1	31.4	56.0	55.6	0.4	53	68	167	5	14			
			Tunnel Ventilation Shaft	S1	L	Y	9.35	6.50	2	19	N/A	56.3	43.8	12.5	56.3	90	164	0	41			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.8	42.8	13	55.8	89	169	-	-			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	3	3	283.7	62.9	45	17.9	62.9	87	174	-	-			
			ABBCS Room	W2	L	Y	1.00	4.00	3	0.5	17.0	59.7	50	9.7	59.2	72	176	10	12			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Not used.

(iii) Method 2 Far field method for Louvres or Plants
Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vii) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (ii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS2	No. 32 Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	448	-	-	32	49	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	443	10	22			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	443	10	3			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	443	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	443	10	22			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	430	10	21			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	430	10	10			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	425	10	8			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	439	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	435	0	26			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	425	0	24			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	437	0	26			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	435	0	18			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	435	0	22			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	437	0	16			
SS4 ^(vi)	Leung Uk Tsuen Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	314	-	-	35	49	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	315	10	25			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	300	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	307	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	297	5	31			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	297	5	30			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	295	5	19			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	300	5	16			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	305	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	308	5	24			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	295	5	23			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	312	10	19			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	312	10	11			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	312	10	15			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	312	10	9			
			Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	227	-	-			
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	236	0	38			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	240	0	18			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS5	51A Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	228	-	-	43	52	0
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	235	0	38			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	233	0	37			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	230	0	26			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	233	0	24			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	235	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	244	10	21			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	230	10	20			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	243	10	21			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	248	10	13			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	248	10	17			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	230	10	12			
SS11a ^(vi)	Leung Uk Tsuen Squats	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	176	-	-	42	52	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	160	0	41			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	160	0	22			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	186	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	186	10	30			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	186	10	29			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	180	10	18			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	180	10	16			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	180	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	163	10	25			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	180	10	22			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	159	5	30			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	165	5	22			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	165	5	26			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	180	5	19			
	Planned village	Ventilation Shaft for	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	272	-	-			
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	276	0	36			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	290	0	17			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	274	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	300	0	35			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	300	0	34			

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS14	house at Village Zone	N/B ⁽ⁱ⁾ and Building Service	Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	281	0	24	40	49	0
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	286	0	22			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	281	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	285	10	20			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	286	10	18			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	285	10	20			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	290	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	292	10	16			
Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	286	10	10						
SS20 ^(vi)	Village house at Shek Kong	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	271	-	-	36	49	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	274	10	26			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	280	10	7			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	264	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	250	5	32			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	250	5	31			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	258	5	20			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	258	5	18			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	263	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	286	5	25			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	258	5	24			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	270	10	20			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	283	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	283	10	16			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	258	10	11			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vi) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱ⁾	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS2	No. 32 Leung Uk Tsuen	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	448	10	20	31	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	443	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	443	10	3			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	443	10	16			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	443	10	22			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	430	10	21			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	430	10	10			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	425	10	8			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	439	0	24			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	435	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	425	0	24			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	437	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	435	0	18			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	435	0	22			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	437	0	16			
SS4 ^(vi)	Leung Uk Tsuen Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	314	10	23	35	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	315	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	300	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	307	5	24			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	297	5	31			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	297	5	30			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	295	5	19			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	300	5	16			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	305	5	22			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	308	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	295	5	23			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	312	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	312	10	11			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	312	10	15			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	312	10	9			
			Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	227	0	36			
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	236	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	240	0	18			

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (ii)	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS5	51A Leung Uk Tsuen	Ventilation Shaft for S/B (i) and Building Service	Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	228	0	32	43	52	0
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	235	0	38			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	233	0	37			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	230	0	26			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	233	0	24			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	235	10	20			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	244	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	230	10	20			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	243	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	248	10	13			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	248	10	17			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	230	10	12			
SS11a ^(vi)	Leung Uk Tsuen Squats	Ventilation Shaft for S/B (i) and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	176	0	38	40	52	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	160	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	160	0	22			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	186	10	24			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	186	10	30			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	186	10	29			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	180	10	18			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	180	10	16			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	180	10	22			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	163	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	180	10	22			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	159	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	165	5	22			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	165	5	26			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	180	5	19			
	Planned village	Ventilation Shaft for	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	272	0	34			
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	276	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	290	0	17			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	274	0	30			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	300	0	35			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	300	0	34			

Day and Evening Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (ii)	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (v)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vi)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Day and Evening Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS14	house at Village Zone	S/B (i) and Building Service	Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	281	0	24	40	49	0
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	286	0	22			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	281	10	18			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	285	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	286	10	18			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	285	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	290	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	292	10	16			
Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	286	10	10						
SS20 ^(vi)	Village house at Shek Kong	Ventilation Shaft for S/B (i) and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	271	10	24	36	49	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	274	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	280	10	7			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	264	5	26			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	250	5	32			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	250	5	31			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	258	5	20			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	258	5	18			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	263	5	24			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	286	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	258	5	24			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	270	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	283	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	283	10	16			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	258	10	11			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iii) Results are averaged from the measured noise levels.

(iv) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(v) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vi) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS2	No. 32 Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	448	-	-	32	39	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	443	10	22			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	443	10	3			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	443	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	443	10	22			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	430	10	21			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	430	10	10			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	425	10	8			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	439	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	435	0	26			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	425	0	24			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	437	0	26			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	435	0	18			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	435	0	22			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	437	0	16			
SS4 ^(vii)	Leung Uk Tsuen Village House	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	314	-	-	35	40	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	315	10	25			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	300	10	6			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	307	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	297	5	31			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	297	5	30			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	295	5	19			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	300	5	16			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	305	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	308	5	24			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	295	5	23			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	312	10	19			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	312	10	11			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	312	10	15			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	312	10	9			
			Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	227	-	-			
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	236	0	38			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	240	0	18			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} [dB(A)] ^(vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS5	51A Leung Uk Tsuen	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	228	-	-	43	45	0
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	235	0	38			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	233	0	37			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	230	0	26			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	233	0	24			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	235	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	244	10	21			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	230	10	20			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	243	10	21			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	248	10	13			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	248	10	17			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	230	10	12			
SS11a ^(vii)	Leung Uk Tsuen Squats	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	176	-	-	42	50	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	160	0	41			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	160	0	22			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	186	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	186	10	30			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	186	10	29			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	180	10	18			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	180	10	16			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	180	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	163	10	25			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	180	10	22			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	159	5	30			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	165	5	22			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	165	5	26			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	180	5	19			
	Planned village	Ventilation Shaft for	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	272	-	-			
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	276	0	36			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	290	0	17			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	274	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	300	0	35			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	300	0	34			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS14	house at Village Zone	N/B ⁽ⁱ⁾ and Building Service	Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	281	0	24	40	47	0
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	286	0	22			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	281	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	285	10	20			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	286	10	18			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	285	10	20			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	290	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	292	10	16			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	286	10	10			
SS20 ^(vii)	Village house at Shek Kong	Ventilation Shaft for N/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	N ⁽ⁱ⁾	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	271	-	-	36	40	0
			Tunnel Ventilation Shaft	N2	L	Y	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	274	10	26			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	280	10	7			
			Tunnel Ventilation Shaft	E1	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	264	-	-			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	250	5	32			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	250	5	31			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	258	5	20			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	258	5	18			
			Tunnel Ventilation Shaft	S1	L	N ⁽ⁱ⁾	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	263	-	-			
			Tunnel Ventilation Shaft	S2	L	Y	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	286	5	25			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	258	5	24			
			Tunnel Ventilation Shaft	W1	L	Y	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	270	10	20			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	283	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	283	10	16			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	258	10	11			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Not used.

(iii) Method 2 Far field method for Louvres or Plants
Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vii) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (iv)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS2	No. 32 Leung Uk Tsuen	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	448	10	20	31	39	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	443	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	443	10	3			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	443	10	16			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	443	10	22			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	430	10	21			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	430	10	10			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	425	10	8			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	439	0	24			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	435	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	425	0	24			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	437	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	435	0	18			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	435	0	22			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	437	0	16			
SS4 ^(vii)	Leung Uk Tsuen Village House	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	314	10	23	35	40	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	315	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	300	10	6			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	307	5	24			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	297	5	31			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	297	5	30			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	295	5	19			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	300	5	16			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	305	5	22			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	308	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	295	5	23			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	312	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	312	10	11			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	312	10	15			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	312	10	9			
			Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	227	0	36			
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	236	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	240	0	18			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method (iii)	Measurement Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] (iii)	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] (iv)	Calculated SWL L_{Aeq} [dB(A)] (vi)	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] (vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS5	51A Leung Uk Tsuen	Ventilation Shaft for S/B (i) and Building Service	Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	228	0	32	43	45	0
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	235	0	38			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	233	0	37			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	230	0	26			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	233	0	24			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	235	10	20			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	244	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	230	10	20			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	243	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	248	10	13			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	248	10	17			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	230	10	12			
SS11a ^(vi)	Leung Uk Tsuen Squats	Ventilation Shaft for S/B (i) and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	176	0	38	40	50	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	160	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	160	0	22			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	186	10	24			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	186	10	30			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	186	10	29			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	180	10	18			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	180	10	16			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	180	10	22			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	163	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	180	10	22			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	159	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	165	5	22			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	165	5	26			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	180	5	19			
	Planned village	Ventilation Shaft for	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	272	0	34			
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	276	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	290	0	17			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	274	0	30			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	300	0	35			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	300	0	34			

Night Time Fixed Plant Noise at NSR

NSR		Noise Source	Description	Louvre ID	Plant or Louvre? (P/L)	In operation? (Y/N)	Louvre Size (m)		Method ⁽ⁱⁱⁱ⁾	Measure-ment Distance, D_M (m)	Surface Area of Measurement Box, S (m ²)	Measured L_{Aeq} [dB(A)] ⁽ⁱⁱⁱ⁾	Average Background L_{Aeq} [dB(A)]	Difference L_{Aeq} [dB(A)]	Background Corrected Measured $L_{Aeq,mea}$ [dB(A)] ^(iv)	Calculated SWL L_{Aeq} ^(vi) [dB(A)]	Distance from Noise Source to NSR, D_N [m]	Correction for line of sight, LoS [dB(A)] ^(vii)	Corrected SPL at NSR [dB(A)]	Cumulative SPL at NSR [dB(A)]	Night-Time Criteria [dB(A)]	Exceedance [dB(A)]
							Width	Height														
SS14	house at Village Zone	S/B ⁽ⁱ⁾ and Building Service	Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	281	0	24	40	47	0
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	286	0	22			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	281	10	18			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	285	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	286	10	18			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	285	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	290	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	292	10	16			
Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	286	10	10						
SS20 ^(vii)	Village house at Shek Kong	Ventilation Shaft for S/B ⁽ⁱ⁾ and Building Service	Tunnel Ventilation Shaft	N1	L	Y	9.35	6.50	2	19	N/A	55.2	46.8	8.4	54.5	88	271	10	24	36	40	0
			Tunnel Ventilation Shaft	N2	L	N ⁽ⁱ⁾	9.37	6.50	2	19	N/A	57.1	48.2	8.9	56.5	90	274	-	-			
			Dog House	N3	L	Y	1.70	1.70	2	4	N/A	53.9	50.3	3.6	51.4	71	280	10	7			
			Tunnel Ventilation Shaft	E1	L	Y	5.28	6.50	2	13	N/A	55.8	51.8	4	53.6	84	264	5	26			
			Air Compressor Receiver Room	E2	L	Y	0.80	2.98	3	1	29.5	75.1	60.7	14.4	75.1	90	250	5	32			
			T.ECS Control Room	E3	L	Y	1.60	0.85	2	4	N/A	69.9	60.7	9.2	69.3	89	250	5	31			
			Dog House	E4	L	Y	1.30	1.20	2	4	N/A	59	50.3	8.7	58.4	78	258	5	20			
			Dog House	E5	L	Y	1.70	1.70	2	4	N/A	56.9	50.3	6.6	55.8	76	258	5	18			
			Tunnel Ventilation Shaft	S1	L	Y	5.88	2.85	2	12	N/A	54.3	49.7	4.6	52.5	82	263	5	24			
			Tunnel Ventilation Shaft	S2	L	N ⁽ⁱ⁾	5.28	6.50	2	13	N/A	56	51.8	4.2	53.9	84	286	-	-			
			Dog House	S3	L	Y	1.30	1.20	2	4	N/A	62.1	50.3	11.8	62.1	82	258	5	24			
			Tunnel Ventilation Shaft	W1	L	N ⁽ⁱ⁾	5.28	6.50	2	50	N/A	43.3	37.6	5.7	41.9	84	270	-	-			
			Building Service Control Room	W2	L	Y	0.80	2.98	3	1	29.5	61.4	50.9	10.5	61.4	76	283	10	12			
			MCC Room	W3	L	Y	0.80	2.98	3	1	29.5	65	50.9	14.1	65	80	283	10	16			
			Dog House	W4	L	Y	1.30	1.20	2	3	N/A	57.4	50.3	7.1	56.5	74	258	10	11			

Remarks:

(i) Tunnel ventilation would only be operated for either northbound (N/B) or southbound (S/B) direction under normal scenario.

(ii) Not used.

(iii) Method 2 Far field method for Louvres or Plants

Method 3 Near field method for Louvres or Plants

(iv) Results are averaged from the measured noise levels.

(v) If the difference between the background and the measured noise level is less than 3.0 dB, background noise correction factor should be capped to 3.0 dB.

(vi) The calculation of SWL is in accordance with the methodology described in Section 3.1.1 and Appendix A1 of the Report. For Method 3, K2A was not claimed in the calculation.

(vii) A negative correction of 10dB(A) and 5dB(A) has been adopted to the direction facing of the ventilation shaft totally and partially screened by the proposed noise barriers at SSS respectively.

MPV - Noise Measurement Result - data

Description	Louvre ID	Scenario	Method	Location / measurement	L _{Aeq} [dB]
ECS duct	N1	Normal	2	measurement 1	49.7
	N1	Normal	2	measurement 2	50.4
	N1	Normal	2	measurement 3	49.7
	N1	Normal		AVERAGE	49.9
FS control room	N2	Normal	2	measurement 1	54.7
	N2	Normal	2	measurement 2	55.0
	N2	Normal	2	measurement 3	54.8
	N2	Normal		AVERAGE	54.8
LV switch room	N3	Normal	3	Point 1	54.1
	N3	Normal	3	Point 2	55.5
	N3	Normal	3	Point 3	56.0
	N3	Normal	3	Point 4	54.9
	N3	Normal	3	Point 5	54.6
	N3	Normal	3	Point 6	54.2
	N3	Normal	3	Point 7	54.1
	N3	Normal	3	Point 8	54.8
	N3	Normal	3	Point 9	56.2
	N3	Normal	3	Point 10	55.5
	N3	Normal	3	Point 11	55.0
	N3	Normal	3	Point 12	54.0
	N3	Normal	3	Point 13	53.0
	N3	Normal	3	Point 14	55.0
	N3	Normal	3	Point 15	55.2
	N3	Normal	3	Point 16	55.2
Tunnel ventilation shaft	N3	Normal		AVERAGE	54.9
	E1	Normal	3	Point 1	53.4
	E1	Normal	3	Point 2	52.9
	E1	Normal	3	Point 3	52.8
	E1	Normal	3	Point 4	53.1
	E1	Normal	3	Point 5	54.2
	E1	Normal	3	Point 6	57.2
	E1	Normal	3	Point 7	57.3
	E1	Normal	3	Point 8	56.6
	E1	Normal	3	Point 9	56.1
	E1	Normal	3	Point 10	54.9
	E1	Normal	3	Point 11	54.5
	E1	Normal	3	Point 12	56.3
	E1	Normal	3	Point 13	52.0
	E1	Normal	3	Point 14	53.1
	E1	Normal	3	Point 15	55.2
	E1	Normal	3	Point 16	55.5
	E1	Normal	3	Point 17	54.7
	E1	Normal	3	Point 18	55.1
	E1	Normal	3	Point 19	51.5
	E1	Normal	3	Point 20	52.2
	E1	Normal	3	Point 21	53.7
	E1	Normal	3	Point 22	54.5
	E1	Normal	3	Point 23	54.6
	E1	Normal	3	Point 24	52.4
	E1	Normal	3	Point 25	53.8
	E1	Normal	3	Point 26	54.2
	E1	Normal	3	Point 27	54.4
	E1	Normal	3	Point 28	54.1
	E1	Normal	3	Point 29	53.6
	E1	Normal	3	Point 30	50.9
	E1	Normal	3	Point 31	51.2
	E1	Normal		AVERAGE	54.4
Tunnel ventilation shaft	S1	Normal	3	Point 1	56.5
	S1	Normal	3	Point 2	57.2
	S1	Normal	3	Point 3	55
	S1	Normal	3	Point 4	55
	S1	Normal	3	Point 5	56.7
	S1	Normal	3	Point 6	57.1
	S1	Normal	3	Point 7	58.5
	S1	Normal	3	Point 8	56
	S1	Normal	3	Point 9	57
	S1	Normal	3	Point 10	55.6
	S1	Normal	3	Point 11	55.8
	S1	Normal	3	Point 12	55.1
	S1	Normal	3	Point 13	55.2
	S1	Normal	3	Point 14	52.8
	S1	Normal	3	Point 15	54.2
	S1	Normal	3	Point 16	55.6
	S1	Normal	3	Point 17	54.9
	S1	Normal	3	Point 18	53.6
	S1	Normal	3	Point 19	52.9
	S1	Normal	3	Point 20	51.9

Tunnel ventilation shaft	S1	Normal	3	Point 21	52.9
	S1	Normal	3	Point 22	53
	S1	Normal	3	Point 23	53.2
	S1	Normal	3	Point 24	52.2
	S1	Normal	3	Point 25	52.3
	S1	Normal	3	Point 26	51.4
	S1	Normal		AVERAGE	55.1
	S2	Normal	3	Point 1	56
	S2	Normal	3	Point 2	55
	S2	Normal	3	Point 3	55.2
	S2	Normal	3	Point 4	55.9
	S2	Normal	3	Point 5	56
	S2	Normal	3	Point 6	56.2
	S2	Normal	3	Point 7	56.2
	S2	Normal	3	Point 8	54.8
	S2	Normal	3	Point 9	54.9
	S2	Normal	3	Point 10	55.6
	S2	Normal	3	Point 11	55.1
	S2	Normal	3	Point 12	56.3
	S2	Normal	3	Point 13	55
	S2	Normal	3	Point 14	55.8
Tunnel ventilation shaft	S2	Normal	3	Point 15	53.9
	S2	Normal	3	Point 16	55.2
	S2	Normal	3	Point 17	55.6
	S2	Normal	3	Point 18	55.1
	S2	Normal	3	Point 19	55.8
	S2	Normal	3	Point 20	51.7
	S2	Normal	3	Point 21	53.7
	S2	Normal	3	Point 22	51
	S2	Normal	3	Point 23	53.4
	S2	Normal	3	Point 24	52.1
	S2	Normal	3	Point 25	52.5
	S2	Normal	3	Point 26	51.2
	S2	Normal		AVERAGE	54.8
	W1	Normal	3	Point 1	52.3
	W1	Normal	3	Point 2	51.8
	W1	Normal	3	Point 3	51.5
	W1	Normal	3	Point 4	50.6
	W1	Normal	3	Point 5	49.6
	W1	Normal	3	Point 6	50.5
	W1	Normal	3	Point 7	49.3
	W1	Normal	3	Point 8	50.5
	W1	Normal	3	Point 9	51.5
	W1	Normal	3	Point 10	52.4
Air Release Louvre	W1	Normal	3	Point 11	52.5
	W1	Normal	3	Point 12	50.9
	W1	Normal	3	Point 13	50.5
	W1	Normal	3	Point 14	50.4
	W1	Normal	3	Point 15	51.5
	W1	Normal	3	Point 16	51.2
	W1	Normal	3	Point 17	51.5
	W1	Normal	3	Point 18	50.8
	W1	Normal	3	Point 19	51.4
	W1	Normal	3	Point 20	48.2
	W1	Normal	3	Point 21	50.1
	W1	Normal	3	Point 22	49.6
	W1	Normal	3	Point 23	50.2
	W1	Normal	3	Point 24	47.6
	W1	Normal	3	Point 25	47.2
	W1	Normal	3	Point 26	46
	W1	Normal	3	Point 27	46.6
	W1	Normal	3	Point 28	47.2
	W1	Normal	3	Point 29	47.3
	W1	Normal	3	Point 30	48.7
Air Release Louvre	W1	Normal	3	Point 31	46.4
	W1	Normal		AVERAGE	50.2
	W2	Normal	3	Point 1	57.6
	W2	Normal	3	Point 2	57.4
	W2	Normal	3	Point 3	57.9
	W3	Normal	3	Point 4	57.2
	W4	Normal	3	Point 5	57.9
	W5	Normal	3	Point 6	57
	W6	Normal	3	Point 7	58.1
	W7	Normal	3	Point 8	57.7
	W2	Normal		AVERAGE	57.6

NTV - Noise Measurement Result - data

Description	Louvre ID	Scenario	Method	Location / measurement	LAeq [dB]
Tunnel ventilation shaft	N1	Normal	3	Point 1	50.8
		Normal	3	Point 2	50.8
		Normal	3	Point 3	51.1
		Normal	3	Point 4	51.1
		Normal	3	Point 5	51.2
		Normal	3	Point 6	51.1
		Normal	3	Point 7	51
		Normal	3	Point 8	50.7
		Normal	3	Point 9	51.1
		Normal	3	Point 10	51.6
		Normal	3	Point 11	51.5
		Normal	3	Point 12	51.6
		Normal	3	Point 13	51.2
		Normal	3	Point 14	51
		Normal	3	Point 15	50.3
		Normal	3	Point 16	50
Tunnel ventilation shaft	N2	Normal	3	AVERAGE	51.0
		Normal	3	Point 1	49.9
		Normal	3	Point 2	49.6
		Normal	3	Point 3	50
		Normal	3	Point 4	50
		Normal	3	Point 5	49.9
		Normal	3	Point 6	49.7
		Normal	3	Point 7	50.1
		Normal	3	Point 8	49.8
		Normal	3	Point 9	49.6
		Normal	3	Point 10	49.7
		Normal	3	Point 11	49.9
		Normal	3	Point 12	49.7
		Normal	3	Point 13	49.6
		Normal	3	Point 14	49.7
		Normal	3	Point 15	48.3
CTER	N2	Normal	3	Point 16	48.1
		Normal	3	AVERAGE	49.6
	N3	Normal	3	Point 1	53.9
		Normal	3	Point 2	52.7
		Normal	3	Point 3	56.5
		Normal	3	Point 4	53.5
ECS duct	N3	Normal	3	Point 5	53.2
		Normal	3	AVERAGE	54.2
	N4	Normal	3	Point 1	58.2
		Normal	3	Point 2	58.7
		Normal	3	Point 3	57.9
		Normal	3	Point 4	58.8
Tunnel ventilation shaft	N4	Normal	3	Point 5	57.9
		Normal	3	Point 6	58.1
		Normal	3	Point 7	58.4
		Normal	3	Point 8	56.8
		Normal	3	Point 9	59.6
		Normal	3	Point 10	58.7
		Normal	3	Point 11	58.6
		Normal	3	Point 12	59.9
		Normal	3	AVERAGE	58.5
	E1	Normal	3	Point 1	52.5
		Normal	3	Point 2	52.7
		Normal	3	Point 3	53.8
		Normal	3	Point 4	53.3
		Normal	3	Point 5	53.6
		Normal	3	Point 6	53.7
		Normal	3	Point 7	49.9
		Normal	3	Point 8	53.6
		Normal	3	Point 9	55.8
		Normal	3	Point 10	53.9
		Normal	3	Point 11	54.8
		Normal	3	Point 12	54.7
		Normal	3	Point 13	55.6
		Normal	3	Point 14	55.4
		Normal	3	Point 15	55.0
Tunnel ventilation shaft	E2	Normal	3	Point 16	54.4
		Normal	3	AVERAGE	54.1
		Normal	3	Point 1	52.5
		Normal	3	Point 2	53.6
		Normal	3	Point 3	53.7
		Normal	3	Point 4	53.7
		Normal	3	Point 5	53.3
		Normal	3	Point 6	50.9
		Normal	3	Point 7	50.7
		Normal	3	Point 8	50.9
		Normal	3	Point 9	50.1
		Normal	3	Point 10	50.3
		Normal	3	Point 11	47.9
		Normal	3	Point 12	48.6

Tunnel ventilation shaft	E2	Normal	3	Point 13	50.6
	E2	Normal	3	Point 14	50.8
	E2	Normal	3	Point 15	50.7
	E2	Normal	3	Point 16	50.7
	E2	Normal	3	AVERAGE	51.5
	S1	Normal	3	Point 1	54.1
		Normal	3	Point 2	53.6
		Normal	3	Point 3	55.1
		Normal	3	Point 4	54.7
		Normal	3	Point 5	54.2
		Normal	3	Point 6	52.3
		Normal	3	Point 7	57.9
		Normal	3	Point 8	54.8
		Normal	3	Point 9	56.6
		Normal	3	Point 10	57
		Normal	3	Point 11	57.8
		Normal	3	Point 12	54.4
		Normal	3	Point 13	54.5
		Normal	3	Point 14	54.3
		Normal	3	Point 15	56
Tunnel ventilation shaft	S1	Normal	3	Point 16	56
		Normal	3	AVERAGE	55.5
	S2	Normal	3	Point 1	54.2
		Normal	3	Point 2	54.8
		Normal	3	Point 3	55.0
		Normal	3	Point 4	55.6
		Normal	3	Point 5	55.4
		Normal	3	Point 6	55.4
		Normal	3	Point 7	56.6
		Normal	3	Point 8	55.4
		Normal	3	Point 9	56.0
		Normal	3	Point 10	54.1
		Normal	3	Point 11	59.4
		Normal	3	Point 12	57.4
		Normal	3	Point 13	55.0
		Normal	3	Point 14	55.9
		Normal	3	Point 15	55.2
LV switch room	S2	Normal	3	Point 16	55.0
		Normal	3	AVERAGE	55.9
	S3	Normal	3	Point 1	54.3
		Normal	3	Point 2	55.0
		Normal	3	Point 3	55.1
		Normal	3	Point 4	56.2
		Normal	3	Point 5	52.4
		Normal	3	Point 6	53.1
		Normal	3	Point 7	53.8
		Normal	3	Point 8	55.5
		Normal	3	Point 9	54.2
		Normal	3	Point 10	55.4
		Normal	3	Point 11	54.2
		Normal	3	Point 12	54.6
		Normal	3	AVERAGE	54.6
LV switch room	S4	Normal	3	Point 1	54.2
		Normal	3	Point 2	55.0
		Normal	3	Point 3	55.1
		Normal	3	Point 4	56.2
		Normal	3	Point 5	52.4
		Normal	3	Point 6	53.1
		Normal	3	Point 7	53.8
		Normal	3	Point 8	55.5
		Normal	3	Point 9	54.2
		Normal	3	Point 10	55.4
		Normal	3	Point 11	54.2
		Normal	3	Point 12	54.6
		Normal	3	AVERAGE	54.6
LV switch room	S5	Normal	3	Point 1	58.6
		Normal	3	Point 2	61.9
		Normal	3	Point 3	57.7
		Normal	3	Point 4	60.9
		Normal	3	Point 5	59.5
		Normal	3	Point 6	60.6
		Normal	3	Point 7	59.5
		Normal	3	Point 8	60.7
		Normal	3	Point 9	60.4
		Normal	3	Point 10	59.5
		Normal	3	Point 11	59.7
		Normal	3	Point 12	61.4
		Normal	3	AVERAGE	60.2
Exhaust Air Duct	S6	Normal	2	measurement 1	66.1
		Normal	2	measurement 2	66.2
		Normal	2	measurement 3	66.3
		Normal	2	AVERAGE	66.2
UPS Room Fresh Air Intake	W1	Normal	2	measurement 1	59.5
		Normal	2	measurement 2	59.2
		Normal	2	measurement 3	59.2
		Normal	2	AVERAGE	59.3

SMV - Noise Measurement Result - data

Description	Louvre ID	Scenario	Method	Location / measurement	L.Aeq [dB]
Tunnel ventilation shaft	N1	Normal	2	measurement 1	46.2
	N1	Normal	2	measurement 2	46.3
	N1	Normal	2	measurement 3	46.2
	N1	Normal		AVERAGE	46.2
FS inlet	N2	Normal	3	Point 1	54.7
	N2	Normal	3	Point 2	53
	N2	Normal	3	Point 3	53.6
	N2	Normal	3	Point 4	50.5
	N2	Normal	3	Point 5	48.8
	N2	Normal		AVERAGE	52.6
MCC room	N3	Normal	3	Point 1	61.4
	N3	Normal	3	Point 2	63.1
	N3	Normal	3	Point 3	62
	N3	Normal	3	Point 4	62.1
	N3	Normal	3	Point 5	63.8
	N3	Normal	3	Point 6	63.3
	N3	Normal	3	Point 7	62.3
	N3	Normal	3	Point 8	62.5
	N3	Normal		AVERAGE	62.6
Exhaust air louvre	N4	Normal	3	Point 1	50.5
	N4	Normal	3	Point 2	46.3
	N4	Normal	3	Point 3	48
	N4	Normal	3	Point 4	48.1
	N4	Normal	3	Point 5	46.8
	N4	Normal	3	Point 6	47.3
	N4	Normal	3	Point 7	47.4
	N4	Normal	3	Point 8	48.4
	N4	Normal	3	Point 9	48.7
	N4	Normal	3	Point 10	48.8
	N4	Normal	3	Point 11	49.8
	N4	Normal	3	AVERAGE	48.4
L30	N5	Normal	3	Point 1	61.1
	N5	Normal	3	Point 2	61.9
	N5	Normal	3	Point 3	62.5
	N5	Normal	3	Point 4	62.2
	N5	Normal	3	Point 5	61.4
	N5	Normal	3	Point 6	61.5
	N5	Normal	3	Point 7	61.3
	N5	Normal	3	Point 8	61.6
	N5	Normal		AVERAGE	61.7
UPS room	E1	Normal	3	Point 1	68.6
	E1	Normal	3	Point 2	70.5
	E1	Normal	3	Point 3	74
	E1	Normal	3	Point 4	74.7
	E1	Normal	3	Point 5	70.9
	E1	Normal	3	Point 6	68.4
	E1	Normal	3	Point 7	68.7
	E1	Normal	3	Point 8	72.6
	E1	Normal	3	Point 9	77.4
	E1	Normal	3	Point 10	74.9
	E1	Normal	3	Point 11	73.1
	E1	Normal	3	Point 12	69.7
LV switch room	E1	Normal		AVERAGE	72.9
	E2	Normal	3	Point 1	67.3
	E2	Normal	3	Point 2	64.8
	E2	Normal	3	Point 3	63.8
	E2	Normal	3	Point 4	65.9
	E2	Normal	3	Point 5	70.2
	E2	Normal	3	Point 6	66.6
	E2	Normal	3	Point 7	65.9
	E2	Normal	3	Point 8	68.8
	E2	Normal	3	Point 9	66
	E2	Normal	3	Point 10	62.7
	E2	Normal	3	Point 11	61.7
Fresh air louvre	E2	Normal	3	Point 12	64.6
	E2	Normal		AVERAGE	66.3
	E3	Normal	3	Point 1	49.9
	E3	Normal	3	Point 2	49.2
	E3	Normal	3	Point 3	48.7
	E3	Normal	3	Point 4	48.8
	E3	Normal	3	Point 5	48.6
	E3	Normal	3	Point 6	51.7
	E3	Normal	3	Point 7	47.2
	E3	Normal	3	Point 8	47.4
	E3	Normal	3	Point 9	46.6
	E3	Normal	3	Point 10	48.1
Staircase pressurization fan room 1	E3	Normal	3	Point 11	47.2
	E3	Normal	3	Point 12	51.7
	E3	Normal		AVERAGE	49.1
	E4	Normal	3	Point 1	61.9
	E4	Normal	3	Point 2	61.9
	E4	Normal	3	Point 3	60.7
	E4	Normal	3	Point 4	63
	E4	Normal	3	Point 5	63.3
	E4	Normal	3	Point 6	61.5
	E4	Normal	3	Point 7	61.7
	E4	Normal	3	Point 8	61.7
	E4	Normal		AVERAGE	62.6

Staircase pressurization fan room 2	E4	Normal	3	Point 6	61.5
	E4	Normal	3	Point 7	61.7
	E4	Normal	3	Point 8	64.6
	E4	Normal	3	Point 9	64.7
	E4	Normal	3	Point 10	61.2
	E4	Normal	3	Point 11	62.2
	E4	Normal	3	Point 12	61.7
	E4	Normal		AVERAGE	62.6
	E5	Normal	3	Point 1	53.8
	E5	Normal	3	Point 2	53.4
	E5	Normal	3	Point 3	52.3
	E5	Normal	3	Point 4	54.4
Tunnel ventilation shaft	E5	Normal	3	Point 5	58
	E5	Normal	3	Point 6	52.3
	E5	Normal	3	Point 7	54.1
	E5	Normal	3	Point 8	54.4
	E5	Normal	3	Point 9	52.9
	E5	Normal	3	Point 10	52
	E5	Normal	3	Point 11	52.1
	E5	Normal	3	Point 12	52.8
	E5	Normal		AVERAGE	53.9
	S1	Normal	2	measurement 1	55.2
	S1		2	measurement 2	56
	S1		2	measurement 3	55.9
Sprinkler & FS pump room	S1	Normal		AVERAGE	55.7
	S2	Normal	2	measurement 1	66.8
	S2	Normal	2	measurement 2	66.9
	S2	Normal	2	measurement 3	66.8
	S2	Normal		AVERAGE	66.8
Air compressor receiver room	S3	Normal	3	Point 1	67.7
	S3	Normal	3	Point 2	70
	S3	Normal	3	Point 3	73.1
	S3	Normal	3	Point 4	73
	S3	Normal	3	Point 5	70.1
	S3	Normal	3	Point 6	66.3
	S3	Normal	3	Point 7	66
	S3	Normal	3	Point 8	68.8
	S3	Normal	3	Point 9	71.5
	S3	Normal	3	Point 10	76
	S3	Normal	3	Point 11	69.4
	S3	Normal	3	Point 12	67.7
Air compressor receiver room	S3	Normal		AVERAGE	71.0
	S4	Normal	3	Point 1	67.9
	S4	Normal	3	Point 2	73.5
	S4	Normal	3	Point 3	72.5
	S4	Normal	3	Point 4	73.6
	S4	Normal	3	Point 5	69.2
	S4	Normal	3	Point 6	63.4
	S4	Normal	3	Point 7	63.5
	S4	Normal	3	Point 8	68.5
	S4	Normal	3	Point 9	73.5
	S4	Normal	3	Point 10	72.9
	S4	Normal	3	Point 11	69
Staircase pressurization fan room	S4	Normal	3	Point 12	66.5
	S4	Normal		AVERAGE	70.8
	S5	Normal	3	Point 1	55.8
	S5	Normal	3	Point 2	55.0
	S5	Normal	3	Point 3	55.9
	S5	Normal	3	Point 4	55.0
	S5	Normal	3	Point 5	55.4
	S5	Normal	3	Point 6	56.8
	S5	Normal	3	Point 7	55.5
	S5	Normal	3	Point 8	57.4
	S5	Normal		AVERAGE	55.9
	W1	Normal	2	measurement 1	48.7
Tunnel ventilation shaft	W1		2	measurement 2	48.8
	W1		2	measurement 3	48.4
	W1	Normal		AVERAGE	48.6
	W2	Normal	2	measurement 1	47.4
	W2	Normal	2	measurement 2	47.9
Tunnel ventilation shaft	W2	Normal	2	measurement 3	47.4
	W2	Normal		AVERAGE	47.6
	W3	Normal	2	measurement 1	79.3
	W3	Normal	2	measurement 2	79.5
	W3	Normal	2	measurement 3	79.5
SPS air release louvre	W3	Normal		AVERAGE	79.4
	W4	Normal	3	Point 1	64.9
	W4	Normal	3	Point 2	64.4
	W4	Normal	3	Point 3	60.2
	W4	Normal	3	Point 4	64.6
	W4	Normal	3	Point 5	64.1
	W4	Normal	3	Point 6	64.3
	W4	Normal	3	Point 7	62.3
	W4	Normal	3	Point 8	62.6
	W4	Normal		AVERAGE	63.7

SPN - Noise Measurement Result - data

Description	Louvre ID	Scenario	Method	Location / measurement	L _{Aeq} [dB]
Tunnel Ventilation Shaft	N1	Normal	2	Measurement 1	54.8
	N1	Normal	2	Measurement 2	54.9
	N1	Normal	2	Measurement 3	54.8
	N1	Normal		AVERAGE	54.8
Tunnel Ventilation Shaft	N2	Normal	2	Measurement 1	54.9
	N2	Normal	2	Measurement 2	55.3
	N2	Normal	2	Measurement 3	55.7
	N2	Normal		AVERAGE	55.3
Dog House	N3	Normal	3	Point 1	56.2
	N3	Normal	3	Point 2	56.8
	N3	Normal	3	Point 3	55.8
	N3	Normal	3	Point 4	55.0
	N3	Normal	3	Point 5	56.1
	N3	Normal	3	Point 6	56.7
	N3	Normal	3	Point 7	56.3
	N3	Normal	3	Point 8	55.9
	N3	Normal	3	Point 9	56.0
	N3	Normal	3	Point 10	56.2
	N3	Normal	3	Point 11	56.3
	N3	Normal	3	Point 12	55.7
	N3	Normal	3	Point 13	54.6
	N3	Normal	3	Point 14	55.4
	N3	Normal	3	Point 15	56.1
	N3	Normal	3	Point 16	56.0
Tunnel Ventilation Shaft	N3	Normal		AVERAGE	56.0
	E1	Normal	2	Measurement 1	55.9
	E1	Normal	2	Measurement 2	55.9
	E1	Normal	2	Measurement 3	56.1
T.ECS Control Room	E1	Normal		AVERAGE	56.0
	E2	Normal	3	Point 1	54.7
	E2	Normal	3	Point 2	54.6
	E2	Normal	3	Point 3	56.7
	E2	Normal	3	Point 4	57.1
	E2	Normal	3	Point 5	56.5
	E2	Normal	3	Point 6	55.2
	E2	Normal	3	Point 7	55.4
Dog House	E2	Normal	3	Point 8	57.4
	E2	Normal		AVERAGE	56.1
	E3	Normal	3	Point 1	55.5
	E3	Normal	3	Point 2	56.1
	E3	Normal	3	Point 3	55.2
	E3	Normal	3	Point 4	56
	E3	Normal	3	Point 5	56.1
	E3	Normal	3	Point 6	55.2
	E3	Normal	3	Point 7	56.6
	E3	Normal	3	Point 8	56.4
	E3	Normal	3	Point 9	55.6
	E3	Normal	3	Point 10	54.8
Tunnel Ventilation Shaft	E3	Normal	3	Point 11	57.1
	E3	Normal	3	Point 12	56.3
	E3	Normal		AVERAGE	56.0
Tunnel Ventilation Shaft	S1	Normal	2	Measurement 1	56.2
	S1	Normal	2	Measurement 2	56.3
	S1	Normal	2	Measurement 3	56.3
	S1	Normal		AVERAGE	56.3
Tunnel Ventilation Shaft	S2	Normal	2	Measurement 1	55.8
	S2	Normal	2	Measurement 2	55.7
	S2	Normal	2	Measurement 3	55.8
	S2	Normal		AVERAGE	55.8
Tunnel Ventilation Shaft	W1	Normal	3	Point 1	62.8
	W1	Normal	3	Point 2	63
	W1	Normal	3	Point 3	62.6
	W1	Normal	3	Point 4	62.2
	W1	Normal	3	Point 5	63.2
	W1	Normal	3	Point 6	63.5
	W1	Normal	3	Point 7	63.6
	W1	Normal	3	Point 8	62.4
	W1	Normal	3	Point 9	63.5
	W1	Normal	3	Point 10	62.6
	W1	Normal	3	Point 11	62.3
	W1	Normal	3	Point 12	63.3
ABBCS Room	W1	Normal		AVERAGE	62.9
	W2	Normal	3	Point 1	60
	W2	Normal	3	Point 2	60
	W2	Normal	3	Point 3	60.8
	W2	Normal	3	Point 4	59.5
	W2	Normal	3	Point 5	58.1
	W2	Normal	3	Point 6	59.9
	W2	Normal	3	Point 7	59.6
	W2	Normal	3	Point 8	59.4
	W2	Normal		AVERAGE	59.7

SPS - Noise Measurement Result - data

Description	Louvre ID	Scenario	Method	Location / measurement	L _{Aeq} [dB]
Tunnel Ventilation Shaft	N1	Normal	2	measurement 1	55.4
	N1	Normal	2	measurement 2	54.9
	N1	Normal	2	measurement 3	55.4
	N1	Normal		AVERAGE	55.2
Tunnel Ventilation Shaft	N2	Normal	2	measurement 1	57.0
	N2	Normal	2	measurement 2	57.1
	N2	Normal	2	measurement 3	57.2
	N2	Normal		AVERAGE	57.1
Dog House	N3	Normal	2	measurement 1	54.1
	N3	Normal	2	measurement 2	53.7
	N3	Normal	2	measurement 3	53.8
	N3	Normal		AVERAGE	53.9
Tunnel Ventilation Shaft	E1	Normal	2	measurement 1	55.8
	E1	Normal	2	measurement 2	55.7
	E1	Normal	2	measurement 3	56
	E1	Normal		AVERAGE	55.8
Air Compressor Receiver Room	E2	Normal	3	Point 1	77.1
	E2	Normal	3	Point 2	76.5
	E2	Normal	3	Point 3	75.4
	E2	Normal	3	Point 4	76.6
	E2	Normal	3	Point 5	73.3
	E2	Normal	3	Point 6	74.2
	E2	Normal	3	Point 7	74.2
	E2	Normal	3	Point 8	70.5
	E2	Normal		AVERAGE	75.1
T.ECS Control Room	E3	Normal	2	measurement 1	70.1
	E3	Normal	2	measurement 2	69.8
	E3	Normal	2	measurement 3	69.7
	E3	Normal		AVERAGE	69.9
Dog House	E4	Normal	2	measurement 1	59.0
	E4	Normal	2	measurement 2	57.9
	E4	Normal	2	measurement 3	57.3
	E4	Normal		AVERAGE	59.0
Dog House	E5	Normal	2	measurement 1	56.9
	E5	Normal	2	measurement 2	55.2
	E5	Normal	2	measurement 3	55.0
	E5	Normal		AVERAGE	56.9
Tunnel Ventilation Shaft	S1	Normal	2	measurement 1	54.3
	S1	Normal	2	measurement 2	54.4
	S1	Normal	2	measurement 3	54.3
	S1	Normal		AVERAGE	54.3
Tunnel Ventilation Shaft	S2	Normal	2	measurement 1	56.0
	S2	Normal	2	measurement 2	55.9
	S2	Normal	2	measurement 3	56.0
	S2	Normal		AVERAGE	56.0
Dog House	S3	Normal	2	measurement 1	62.1
	S3	Normal	2	measurement 2	61.6
	S3	Normal	2	measurement 3	60.9
	S3	Normal		AVERAGE	62.1
Tunnel ventilation shaft	W1	Normal	2	measurement 1	43.1
	W1	Normal	2	measurement 2	43.2
	W1	Normal	2	measurement 3	43.6
	W1	Normal		AVERAGE	43.3
Building Service Control Room	W2	Normal	3	Point 1	66.1
	W2	Normal	3	Point 2	63.4
	W2	Normal	3	Point 3	62
	W2	Normal	3	Point 4	61
	W2	Normal	3	Point 5	56.9
	W2	Normal	3	Point 6	57.4
	W2	Normal	3	Point 7	57.2
	W2	Normal	3	Point 8	56.2
	W2	Normal		AVERAGE	61.4
MCC Room	W3	Normal	3	Point 1	67.6
	W3	Normal	3	Point 2	66.9
	W3	Normal	3	Point 3	66.9
	W3	Normal	3	Point 4	67.0
	W3	Normal	3	Point 5	61.0
	W3	Normal	3	Point 6	61.5
	W3	Normal	3	Point 7	60.6
	W3	Normal	3	Point 8	60.4
Dog House	W4	Normal	2	measurement 1	57.4
	W4	Normal	2	measurement 2	57.0

W4	Normal	2	measurement 3	56.2
W4	Normal		AVERAGE	57.4

Appendix A4 – Measurement Results at NSRs

Appendix A4 - Measurement Results at NSRs

NSR	Scenario	Measurement Type	Start Time*	End Time*	L _{Aeq} dB(A)
MP1	Day and Evening Time	Background Noise Levels	22:00	22:05	49.0
			22:15	22:20	48.8
		Measured Noise Levels	22:45	23:15	49.0
			00:25	00:55	48.4
	Night-time	Background Noise Levels	02:10	02:15	49.0
			02:15	02:20	50.1
		Measured Noise Levels	01:00	01:30	49.0
			01:30	02:00	49.7
MP5	Day and Evening Time	Background Noise Levels	22:00	22:05	46.6
			22:15	22:20	46.8
		Measured Noise Levels	22:45	23:15	48.1
			00:25	00:55	48.9
	Night-time	Background Noise Levels	02:05	02:10	46.8
			02:15	02:20	48.8
		Measured Noise Levels	01:00	01:30	49.8
			01:30	02:00	48.4
MP6	Day and Evening Time	Background Noise Levels	22:00	22:05	48.4
			22:15	22:20	48.6
		Measured Noise Levels	22:45	23:15	48.7
			00:25	00:55	46.4
	Night-time	Background Noise Levels	02:05	02:10	47.9
			02:10	02:15	46.3
		Measured Noise Levels	01:00	01:30	48.4
			01:30	02:00	47.6
NT1a	Day and Evening Time	Background Noise Levels	23:08	23:13	52.6
			23:13	23:18	51.8
		Measured Noise Levels	23:25	23:55	52.0
			23:56	00:26	52.8
	Night-time	Background Noise Levels	01:54	01:59	44.0
			02:09	02:14	44.0
		Measured Noise Levels	00:28	00:58	46.9
			01:03	01:33	45.7
NT4a	Day and Evening Time	Background Noise Levels	23:13	23:18	51.7
			23:18	23:23	52.4
		Measured Noise Levels	23:24	23:54	50.8
			23:55	00:25	52.5
	Night-time	Background Noise Levels	01:40	01:45	52.5
			01:45	01:50	52.7
		Measured Noise Levels	00:32	01:02	52.8
			01:03	01:33	53.2
SM1	Day and Evening Time	Background Noise Levels	22:12	22:17	65.1
			22:22	22:27	65.0
		Measured Noise Levels	22:39	23:09	64.2
			23:10	23:40	64.3
	Night-time	Background Noise Levels	00:49	00:54	61.2
			00:54	00:59	58.2
		Measured Noise Levels	23:42	00:12	61.3
			00:13	00:43	60.9
SM4	Day and Evening Time	Background Noise Levels	21:45	21:50	60.6
			21:50	21:55	60.1
		Measured Noise Levels	22:30	23:00	60.6
			23:00	23:30	59.4
	Night-time	Background Noise Levels	00:39	00:44	56.2
			00:44	00:49	55.0
		Measured Noise Levels	23:34	00:04	56.6
			00:04	00:34	56.7

NSR	Scenario	Measurement Type	Start Time*	End Time*	L _{Aeq} dB(A)
SS7	Day and Evening Time	Background Noise Levels	23:30	23:35	50.2
			23:35	23:40	50.2
		Measured Noise Levels	23:43	00:13	50.7
			00:13	00:43	48.5
	Night-time	Background Noise Levels	02:25	02:30	47.3
			02:35	02:40	46.5
		Measured Noise Levels	00:50	01:20	47.9
			01:20	01:50	47.2
SS10	Day and Evening Time	Background Noise Levels	23:18	23:23	56.4
			23:23	23:28	58.0
		Measured Noise Levels	23:42	00:12	58.9
			00:12	00:42	56.8
	Night-time	Background Noise Levels	02:24	02:29	55.7
			02:29	02:34	53.0
		Measured Noise Levels	00:46	01:16	55.5
			01:16	01:46	55.8
SS15	Day and Evening Time	Background Noise Levels	22:33	22:38	49.0
			22:38	22:43	48.9
		Measured Noise Levels	23:43	00:13	47.7
			00:13	00:43	47.6
	Night-time	Background Noise Levels	02:25	02:30	48.7
			02:30	02:35	48.9
		Measured Noise Levels	00:50	01:20	48.4
			01:20	01:50	48.4
SS11a	Day and Evening Time	Background Noise Levels	23:15	23:20	46.1
			23:28	23:33	47.7
		Measured Noise Levels	23:52	00:22	48.3
			00:22	00:52	48.3
	Night-time	Background Noise Levels	02:43	02:48	46.8
			02:48	02:53	46.5
		Measured Noise Levels	00:55	01:25	47.6
			01:25	01:55	45.5
SS20	Day and Evening Time	Background Noise Levels	23:04	23:09	57.7
			23:10	23:15	57.2
		Measured Noise Levels	23:42	00:12	57.1
			00:14	00:44	57.3
	Night-time	Background Noise Levels	02:24	02:29	57.6
			02:30	02:35	57.3
		Measured Noise Levels	00:46	01:16	57.1
			01:17	01:47	57.1

Note:

The scenarios were arranged for the purpose of testing and commissioning only. The scenario under “day and evening time” would not happen after 2300 during the operation phase.