

Attachment D

Acoustic Assessment



REPORT R211015R1

Revision 2

Noise Impact Assessment

Licensed Venue

Sporting Globe, King Street Wharf - 22 The Promenade,
Sydney

PREPARED FOR:

Sporting Globe – King Street Wharf

18 February 2022



Noise Impact Assessment

Licensed Venue

Sporting Globe, King Street Wharf - 22 The Promenade, Sydney

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1 INTRODUCTION

Rodney Stevens Acoustics Pty Ltd (RSA) has been engaged by Sporting Globe to assess the noise impacts associated with the operation of the existing licensed venue located King Street Wharf - 22 The Promenade. This assessment is in response to a number of noise complaints submitted to City of Sydney Council.

The purpose of this report is to determine possible noise impacts on nearby receivers and if necessary provide acoustic control recommendations so that the existing licensed venue may operate in an acoustically compliant manner in accordance with City of Sydney Council's requirements.

Specific acoustic terminology is used in this report. An explanation of common acoustic terms is provided in Appendix A.

2 PROPOSED DEVELOPMENT

2.1 Site Description

The existing licensed venue on ground level at King Street Wharf - 22 The Promenade consist of a restaurant and micro brewery with the proposed addition of a TAB and Keno, the venue provides internal sitting space as well as an outdoor sitting area catering for approximately 732 patrons indoors and 168 in the outdoor dining area (refer to Figure 2-2).

The nearest residences potentially affected by the operation of the licensed venue are the residential units directly above and the residential receivers to the north, east and south. Figure 2-1 shows an aerial image of the location in question, the surrounding environment and the noise monitoring location.

There are a number of sensitive receivers surrounding the proposed development, these receivers will be affected by noise generated by the proposed development. The following table shows the most affected receivers

Table 2-1 Sensitive Receivers

Receiver	Sensitive Receiver's Address
R1	Units Directly Above
R2	15 Lime Street
R3	Units of Pirrama Road
C1	Australian national Museum

2.2 Proposed Development

It is understood that the maximum number of patrons within the internal and external areas will be as follows:

- Internal Area 732 Patrons
- Outdoor Area 168 Patrons



2.3 Hours of Operation

The following proposed hours of operation of the licensed venue are:

Monday to Sunday: 24 Hours (Internal Area)

Monday to Sunday: 8:00am to 2:00am (External Area)

2.4 Site Location

The following figure shows the location of the venues as well as all nearby sensitive receiver

Figure 2-1 Site Location



Image Courtesy of SixMaps © 2022.



Figure 2-2 Proposed Café/Bar



3 BASELINE NOISE SURVEY

3.1 Unattended Noise Monitoring

In order to characterize the existing acoustical environment of the area unattended noise monitoring was conducted between Thursday 16th December and Friday 23rd December 2021. The logger was located on street level between 2 residential buildings at King Street Wharf.

Logger location was selected with consideration to other noise sources which may influence readings, security issues for noise monitoring equipment and gaining permission for access from residents and landowners.

Instrumentation for the survey comprised of a Ngarra Octave Frequency Analyzing Environmental Noise Logger (serial number 87807B) fitted with microphone windshield. Calibration of the logger was checked prior to and following measurements. Drift in calibration did not exceed ± 0.5 dB(A). All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

The logger determines LA_1 , LA_{10} , LA_{90} and LA_{eq} levels of the ambient noise. LA_1 , LA_{10} , LA_{90} are the levels exceeded for 1%, 10% and 90% of the sample time respectively (see Glossary for definitions in Appendix A).

Detailed results at the monitoring location are presented in graphical format in Appendix B. The graphs show measured values of LA_1 , LA_{10} , LA_{90} and LA_{eq} for each 15-minute monitoring period.



4 NOISE CRITERIA

The establishment of the noise criteria for the assessment of the licensed venues has been based on the City of Sydney Council's Guidelines for entertainment. The specific requirements are presented below:

NOISE - ENTERTAINMENT

(a) *The LA10, 15 minute noise level emitted from the use must not exceed the background noise level (LA90, 15minute) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) by more than 5dB between the hours of 7.00am and 12.00 midnight when assessed at the boundary of any affected residence.*

(b) *The LA10, 15 minute noise level emitted from the use must not exceed the background noise level (LA90, 15 minute) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) between the hours of 12.00 midnight and 7.00am when assessed at the boundary of any affected residence.*

(c) *Notwithstanding compliance with (a) and (b) above, noise from the use when assessed as an LA10, 15 minute enters any residential use through an internal to internal transmission path is not to exceed the existing internal LA90, 15 minute (from external sources excluding the use) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) when assessed within a habitable room at any affected residential use between the hours of 7am and 12midnight. Where the LA90, 15 minute noise level is below the threshold of hearing, Tf at any Octave Band Centre Frequency as defined in Table 1 of International Standard ISO 226 : 2003- Normal Equal-Loudness-Level Contours then the value of Tf corresponding to that Octave Band Centre Frequency shall be used instead.*

(d) *Notwithstanding compliance with (a), (b) and (c) above, the noise from the use must not be audible within any habitable room in any residential use between the hours of 12.00 midnight and 7.00am.*

(e) *The LA10, 15 minute noise level emitted from the use must not exceed the background noise level (LA90, 15 minute) in any Octave Band Centre Frequency (31.5 Hz to 8 kHz inclusive) by more than 3dB when assessed indoors at any affected commercial premises.*

Note: The LA10, 15 minute noise level emitted from the use is as per the definition in the Australian Standard AS1055-1997 Acoustics – Description and measurement of environmental noise. The background noise level LA90, 15 minute is to be determined in the absence of noise emitted by the use and be representative of the noise sensitive receiver. Background noise monitoring must be carried out in accordance with the long-term methodology in Fact Sheet B of the NPfl unless otherwise agreed by the City's Area Planning Manager.



4.1 International Standard ISO 226-2003

The International Standard ISO 226: 2003- Normal Equal-Loudness-Level Contours provides a set of values in decibels that represent the minimum amount of sound that the human ear can register (threshold of hearing) per frequency band. The threshold of hearing values are presented in Table 1 of the ISO standard, these values are in 1/3 octave frequencies. These values have been converted to 1/1 octave values and are presented in the table below:

Table 4-1 Threshold of Hearing in Accordance to ISO 226-2003

Description	Tf Level per Octave Band -dB								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
Threshold of hearing	47	29	16	7	2	2	-5	-6	2
A-Weightings	-39	-26	-16	-9	-3	0	1	1	-1
A-Weighted Hearing Thresholds for Reference	8	3	0	-2	-1	2	-4	-5	1

The values presented above have been taken from ISO 226-2003 using the upper limit band value for each octave frequency in accordance with City of Sydney Council.

4.2 Project Specific Noise Criteria

Based on the spectral data from the noise logger the project specific noise criteria for the operation of the venues have been established in accordance with City of Sydney Council guidelines. The project specific noise criteria are presented in Table 4-2 below.

Table 4-2 Criteria for Operational Noise – External Boundaries

Description	Ambient Noise Level per Octave Band								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
Measured Daytime L ₉₀ Background Noise Level	64	60	55	51	44	46	43	36	26
A Weighted L ₉₀ Background Noise Level	25	34	39	42	41	46	45	37	25
L_{A10} Daytime Criterion (Between 7 am and 12 midnight): At Surrounding Residences	30	39	44	47	46	51	50	42	30
Measured Night-time L ₉₀ Background Noise Level	59	55	51	46	38	37	35	27	19
A Weighted L ₉₀ Background Noise Level	20	28	35	37	35	37	36	28	18



Description	Ambient Noise Level per Octave Band								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
L_{A10} Night-time Criterion (Between 12 midnight and 7 am): At Surrounding Residences	20	28	35	37	35	37	36	28	18

The project specific noise criteria for the internal areas are presented below.

Table 4-3 Criteria for Operational Noise – Internal

Description	Ambient Noise Level per Octave Band								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8kHz
Night-time L ₉₀ Background Noise Level	59	51	45	37	23	19	19	9	2
Threshold of Hearing Correction (If Applicable)	59	51	45	37	23	19	19	9	2
Audibility Correction	49	41	35	27	13	9	9	-1	-8
A Weighted	10	15	19	18	10	9	10	0	-9
L_{A10, 15 Minute} Night-time Criterion (Between 12 midnight and 7 am): At Sensitive Residences	10	15	19	18	10	9	10	0	-9

Table 4-4 Criteria for Operational Noise – Commercial

Description	Ambient Noise Level per Octave Band								
	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
Measured Daytime L ₉₀ Background Noise Level	64	60	55	51	44	46	43	36	26
A Weighted L ₉₀ Background Noise Level	25	34	39	42	41	46	45	37	25
L_{A10} Daytime Criterion At Surrounding Commercial	28	37	42	45	44	49	48	40	28

The ambient noise levels measured by the logger were then compared to the threshold of hearing in every frequency band, corrections have been made in accordance to City of Sydney Council’s requirements.

All ambient noise levels have been A weighted as required by City of Sydney Council. The ambient L₉₀ have been calculated in accordance to the EPA’s Noise Policy for Industry 2017 methodology.



The audibility correction has been applied by deducting 10 dB from the A weighted corrected night time ambient noise levels.

5 NOISE IMPACT ASSESSMENT

5.1 Typical Patron Vocal Levels

The following sections summarise the results of patron and background music assessment and predicted levels at nearby residential receivers as a result of the operation of the proposed licensed venue

Calculations of the amount of noise transmitted to these receivers from the proposed licensed venue have been based on voice levels as referenced in the AAAC Licensed Premises Noise Assessment Technical Guide V2.0. This document provides voice spectrums in different vocal efforts at 1 meter from the talker on axis of the mouth. The spectrum is given in Table 5-1

Table 5-1 Speech Spectrums - AAAC Licensed Premises Noise Assessment Technical Guide V2.0.

Type	Lzeq at 1m (dB) Octave Band Centre Frequency (Hz)							Overall dB(A)
	125	250	500	1 k	2 k	4 k	8 k	
Male (Normal)	47	56	58	52	48	44	39	58
Male (Raised)	56	63	65	62	57	52	46	66
Male (Loud)	59	67	73	72	67	62	53	76

5.2 Patron Sound Power Levels

Based on the maximum number of patrons in all areas as shown in Section 2.2, the following worst-case operational scenarios have been assumed for our assessment:

- Only 50% of all patrons will be talking at any given time, this is assuming that 1 person will be talking and 1 person will be listening.
- The rear function room and dining area are partially shielded by the building
- Approximately 300 patrons will occupy the front bar and dining area

The spectra have been scaled based upon the overall number of patrons expected to be in the respective areas at any given time

Table 5-2 Sound Power Levels of People talking with Raised Voice - Lw – dB

Scenario	Resultant Sound Power Level per Octave Band (dB)							
	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
216 Patrons with Raised Vocal in the Internal Area (Rear)	-	89	96	99	95	90	85	79



150 Patrons with Raised Vocal in the Internal Area (Front Bar)		88	94	97	93	89	84	78
84 Patrons with Raised Vocal in the Outdoor Area	-	85	92	95	91	86	81	75

It is generally agreed that the human voice is not capable of producing noise at 32 Hz and 63Hz octave bands at significant amplitudes. It is also very likely that even if noise emission in this low frequency octave bands exceeds the noise criterion; it will be very close to, if not below, the human threshold of hearing at the receivers.

Appropriate sound power levels conversations have been made for the varying distribution number of patrons.

5.3 Music Sound Power Level

RSA has conducted measurements of background and live music noise levels at various licensed venues, based on these measurements the sound power level spectrum of typical background music is shown in Table 5-3 below:

Table 5-3 Typical Sound Power Level of Typical Restaurant Background Music - Lw – dB

Scenario	Resultant Sound Power Level per Octave Band (dB)								
	31.5Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Typical Background Music	70	79	87	84	79	82	80	78	71
Typical Live Band	93	98	95	97	96	97	91	90	87

5.4 Predicted Noise Impacts

Predictive resultant noise spectrums have been calculated for all proposed licensed venue activities. Noise emissions at the nearest residential receivers are presented in the tables below. The predicted noise calculations take into account the following:

- Heights of receivers are assumed to be 1.5 m above their respective floor level.
- The outdoor area is covered by an awning.
- The number of patrons is as presented in Section 2.2.
- Only background music will be played in the internal areas.
- Live bands can only perform at the rear of the venue (Function Room)
- Some entry doors must be closed after midnight
- The outdoor area must operate as per approved DA consent D/2012/964/B
- A noise limiter is to be implemented in the sound system servicing all areas



The following figure shows the proposed development in relation to the most affected commercial and residential receivers.

Figure 5-1 Affected Receiver Locations



The resulting noise levels from the operation of the proposed licensed venue are presented in the tables below, we have assumed the worst case scenario were all areas are operating simultaneously and at full capacity.

Table 5-4 Predicted External Noise Impact Levels - Residential Receivers Daytime

Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Daytime Assessment (7:00am to 12:00am)									
Combined Noise Level									
R1	-3	14	22	35	43	43	39	34	25
R2	-7	13	23	37	44	46	42	36	24
R3	-20	1	11	22	32	35	30	18	-14
Daytime Criteria	30	39	44	47	46	51	50	42	30



Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Exceedance R1	-	-	-	-	-	-	-	-	-
Exceedance R2	-	-	-	-	-	-	-	-	-
Exceedance R3	-	-	-	-	-	-	-	-	-

Table 5-5 Predicted External Noise Impact Levels - Residential Receivers Night-time

Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Night-time Assessment (12:00am to 7:00am)									
Combined Noise Level									
R1	-10	8	17	30	36	38	35	28	19
R2	-15	5	15	28	36	36	32	25	13
R3	-28	-7	3	13	23	26	22	11	-22
Night-time Criteria	20	28	35	37	35	37	36	28	18
Exceedance R1	-	-	-	-	1	1	-	-	1
Exceedance R2	-	-	-	-	1	-	-	-	-
Exceedance R3	-	-	-	-	-	-	-	-	-

Table 5-6 Predicted Internal Noise Impact Levels – Inaudibility

Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Night-time Assessment (12:00am to 7:00am)									
Combined Noise Level									
R1	-20	1	5	13	11	10	11	-2	-8
R2	-24	-2	3	11	9	8	10	-5	-14



Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
R3	-37	-14	-9	-4	1	-2	0	-19	-49
Inaudibility Criteria	10	15	19	18	10	9	10	0	-9
Exceedance R1	-	-	-	-	1	1	1	-	-
Exceedance R2	-	-	-	-	-	-	-	-	-
Exceedance R3	-	-	-	-	-	-	-	-	-

* We note that an exceedance of 1 dB(A) is generally regarded to be acoustically insignificant

5.5 Commercial Receivers

The resulting noise levels from the operation of the licensed venue into the commercial premise has been assessed in accordance with the City of Sydney Council's Criteria.

The nearest most affected commercial tenancy is located across the harbour the results are presented in the table below:

Table 5-7 Predicted Internal Noise Impact Levels – Commercial Receivers

Receivers	Resultant Sound Pressure Level per Octave Band – dB(A)								
	31.5 Hz	63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Night-time Assessment (12:00am to 7:00am)									
Combined Noise Level									
C1	-19	1	12	21	31	35	31	20	-11
Commercial Receiver Criteria	28	37	42	45	44	49	48	40	28
Exceedance C1	-	-	-	-	-	-	-	-	-

5.6 Mechanical Plant

We have been advised by the management that the existing mechanical plant servicing the licensed venue will not be modified. New mechanical plant items will not be installed, therefore no acoustic assessment is necessary at this time.



6 NOISE CONTROL RECOMMENDATION

The noise emissions from the proposed changes to the licensed venue have the potential to comply with the required criteria with the implementations of the following recommendations:

6.1 Indoor Area

- All live band performances must occur in the function area
- Duets (acoustic guitar and singer) and DJs can perform in the bar area and must be connected to the inhouse noise limiter
- A noise limiter is to be installed to ensure live bands and DJs do not exceed 95 dB(A) at 1 meter from the speakers. All amplified equipment must be connected to the limiter.
- Background music systems must be connected to the noise limiter and must not exceed 80 dB(A) at 1m from the speakers
- The following doors must be closed after midnight to minimise excessive noise from the indoor areas

Figure 6-1 Doors Required To Be Closed After Midnight



Figure 6-2 Doors Required To Be Closed After Midnight - Continued



6.2 Outdoor Area

- The outdoor area must operate as per approved DA consent D/2012/964/B
- All care must be taken to minimise the noise from moving tables and chairs between midnight and 7:00am
- No background music is to be played in this area between midnight and 7:00am

7 CONCLUSION

A noise impact assessment has been conducted in relation to the operation of the Sporting Bar located at King Street Wharf - 22 The Promenade.

This assessment has been conducted and appropriate noise emission criteria have been established in accordance with the City of Sydney Council guidelines.

This report shows compliance with the specific noise criteria has been achieved. The acoustic treatment and noise mitigation measures presented in this report will need to be implemented in order to achieve compliance with the specific noise criteria.

Approved:-

Rodney Stevens
Manager/Principal

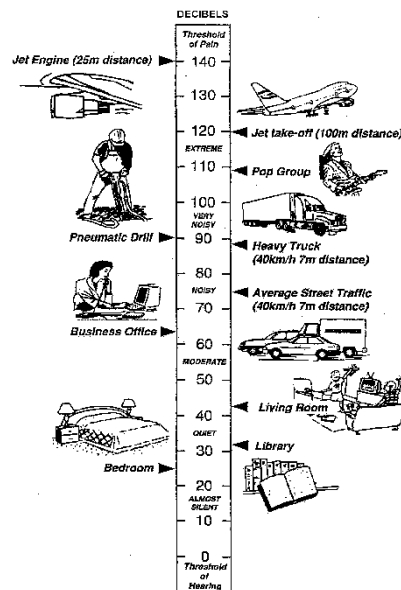


Appendix A – Acoustic Terminology

A-weighted sound pressure	The human ear is not equally sensitive to sound at different frequencies. People are more sensitive to sound in the range of 1 to 4 kHz (1000 – 4000 vibrations per second) and less sensitive to lower and higher frequency sound. During noise measurement an electronic ' <i>A-weighting</i> ' frequency filter is applied to the measured sound level <i>dB(A)</i> to account for these sensitivities. Other frequency weightings (B, C and D) are less commonly used. Sound measured without a filter is denoted as linear weighted dB(linear).
Ambient noise	The total noise in a given situation, inclusive of all noise source contributions in the near and far field.
Community annoyance	Includes noise annoyance due to: <ul style="list-style-type: none">■ character of the noise (e.g. sound pressure level, tonality, impulsiveness, low-frequency content)■ character of the environment (e.g. very quiet suburban, suburban, urban, near industry)■ miscellaneous circumstances (e.g. noise avoidance possibilities, cognitive noise, unpleasant associations)■ human activity being interrupted (e.g. sleep, communicating, reading, working, listening to radio/TV, recreation).
Compliance	The process of checking that source noise levels meet with the noise limits in a statutory context.
Cumulative noise level	The total level of noise from all sources.
Extraneous noise	Noise resulting from activities that are not typical to the area. Atypical activities may include construction, and traffic generated by holiday periods and by special events such as concerts or sporting events. Normal daily traffic is not considered to be extraneous.
Feasible and reasonable measures	Feasibility relates to engineering considerations and what is practical to build; reasonableness relates to the application of judgement in arriving at a decision, taking into account the following factors: <ul style="list-style-type: none">■ Noise mitigation benefits (amount of noise reduction provided, number of people protected).■ Cost of mitigation (cost of mitigation versus benefit provided).■ Community views (aesthetic impacts and community wishes).■ Noise levels for affected land uses (existing and future levels, and changes in noise levels).
Impulsiveness	Impulsive noise is noise with a high peak of short duration or a sequence of these peaks. Impulsive noise is also considered annoying.



Low frequency	Noise containing major components in the low-frequency range (20 to 250 Hz) of the frequency spectrum.
Noise criteria	The general set of non-mandatory noise levels for protecting against intrusive noise (for example, background noise plus 5 dB) and loss of amenity (e.g. noise levels for various land use).
Noise level (goal)	A noise level that should be adopted for planning purposes as the highest acceptable noise level for the specific area, land use and time of day.
Noise limits	Enforceable noise levels that appear in conditions on consents and licences. The noise limits are based on achievable noise levels, which the proponent has predicted can be met during the environmental assessment. Exceedance of the noise limits can result in the requirement for either the development of noise management plans or legal action.
Performance-based goals	Goals specified in terms of the outcomes/performance to be achieved, but not in terms of the means of achieving them.
Rating Background Level (RBL)	The rating background level is the overall single figure background level representing each day, evening and night time period. The rating background level is the 10 th percentile min L _{A90} noise level measured over all day, evening and night time monitoring periods.
Receptor	The noise-sensitive land use at which noise from a development can be heard.
Sleep disturbance	Awakenings and disturbance of sleep stages.
Sound and decibels (dB)	<p>Sound (or noise) is caused by minute changes in atmospheric pressure that are detected by the human ear. The ratio between the quietest noise audible and that which should cause permanent hearing damage is a million times the change in sound pressure. To simplify this range the sound pressures are logarithmically converted to decibels from a reference level of 2×10^{-5} Pa.</p> <p>The picture below indicates typical noise levels from common noise sources.</p>



dB is the abbreviation for decibel – a unit of sound measurement. It is equivalent to 10 times the logarithm (to base 10) of the ratio of a given sound pressure to a reference pressure.

Sound power Level (SWL)

The sound power level of a noise source is the sound energy emitted by the source. Notated as SWL, sound power levels are typically presented in *dB(A)*.

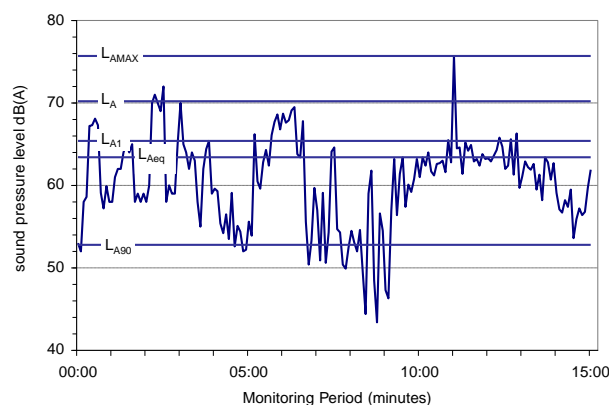
Sound Pressure Level (SPL)

The level of noise, usually expressed as SPL in *dB(A)*, as measured by a standard sound level meter with a pressure microphone. The sound pressure level in *dB(A)* gives a close indication of the subjective loudness of the noise.

Statistic noise levels

Noise levels varying over time (e.g. community noise, traffic noise, construction noise) are described in terms of the statistical exceedance level.

A hypothetical example of A weighted noise levels over a 15 minute measurement period is indicated in the following figure:



Key descriptors:

L_{Amax} Maximum recorded noise level.

L_{A1} The noise level exceeded for 1% of the 15 minute interval.



L_{A10} Noise level present for 10% of the 15 minute interval. Commonly referred to the average maximum noise level.

L_{Aeq} Equivalent continuous (energy average) A-weighted sound pressure level. It is defined as the steady sound level that contains the same amount of acoustic energy as the corresponding time-varying sound.

L_{A90} Noise level exceeded for 90% of time (background level). The average minimum background sound level (in the absence of the source under consideration).

Threshold

The lowest sound pressure level that produces a detectable response (in an instrument/person).

Tonality

Tonal noise contains one or more prominent tones (and characterised by a distinct frequency components) and is considered more annoying. A 2 to 5 dB(A) penalty is typically applied to noise sources with tonal characteristics



Appendix B – Instrument Calibration Certificate



Sound Level Meter IEC 61672-3:2013 Calibration Certificate Calibration Number C21598

Client Details	Acoustic Research Labs Pty Ltd 36/14 Loyalty Road North Rocks NSW 2151
Equipment Tested/ Model Number :	ARL Ngara
Instrument Serial Number :	87807B
Microphone Serial Number :	317325
Pre-amplifier Serial Number :	28419
Pre-Test Atmospheric Conditions	Post-Test Atmospheric Conditions
Ambient Temperature : 25.1°C	Ambient Temperature : 24.9°C
Relative Humidity : 42.2%	Relative Humidity : 42.2%
Barometric Pressure : 100.5kPa	Barometric Pressure : 100.5kPa
Calibration Technician : Lucky Jaiswal	Secondary Check: Rhys Gravelle
Calibration Date : 18 Oct 2021	Report Issue Date : 18 Oct 2021
Approved Signatory :	Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	Pass
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	N/A
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full requirements of IEC 61672-1:2013 because evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013 and because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Least Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
125Hz	±0.13dB	Temperature	±0.2°C
1kHz	±0.13dB	Relative Humidity	±2.4%
8kHz	±0.14dB	Barometric Pressure	±0.015kPa
Electrical Tests	±0.10dB		

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.



This calibration certificate is to be read in conjunction with the calibration test report.

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172. Accredited for compliance with ISO/IEC 17025 - calibration.

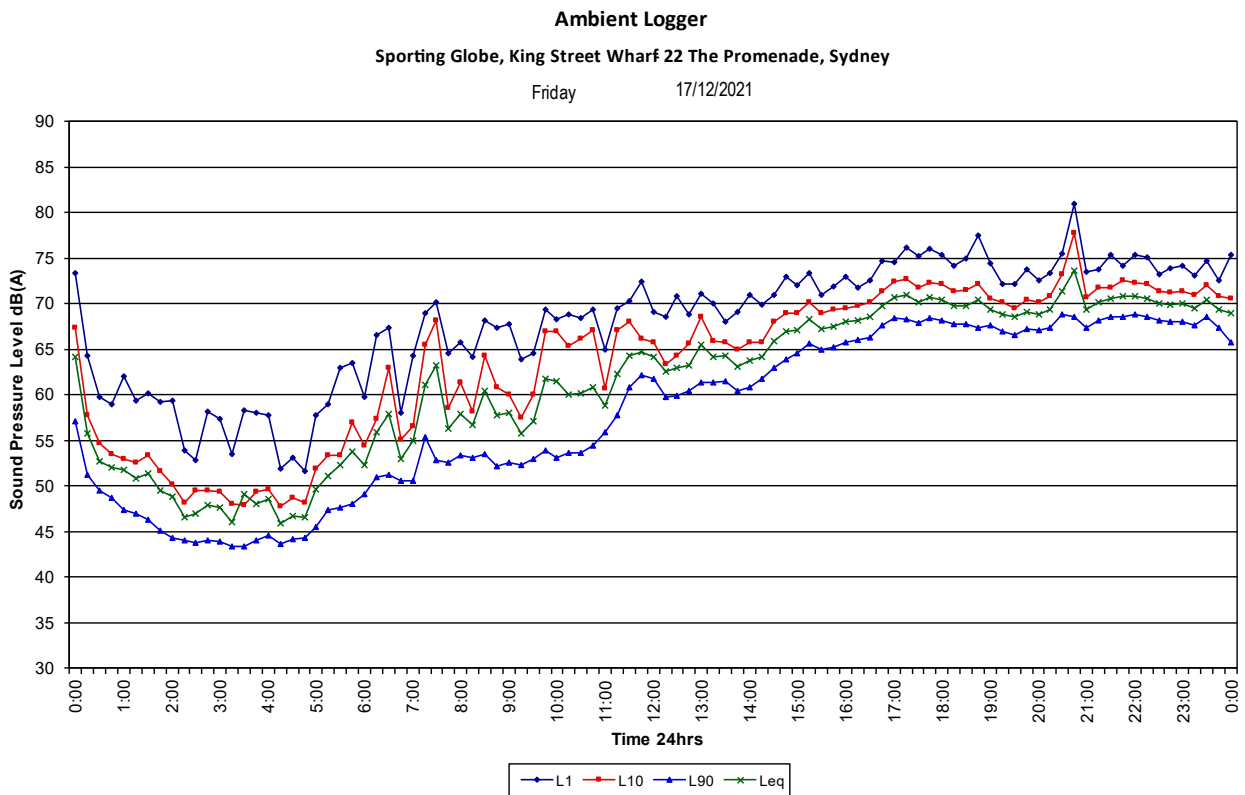
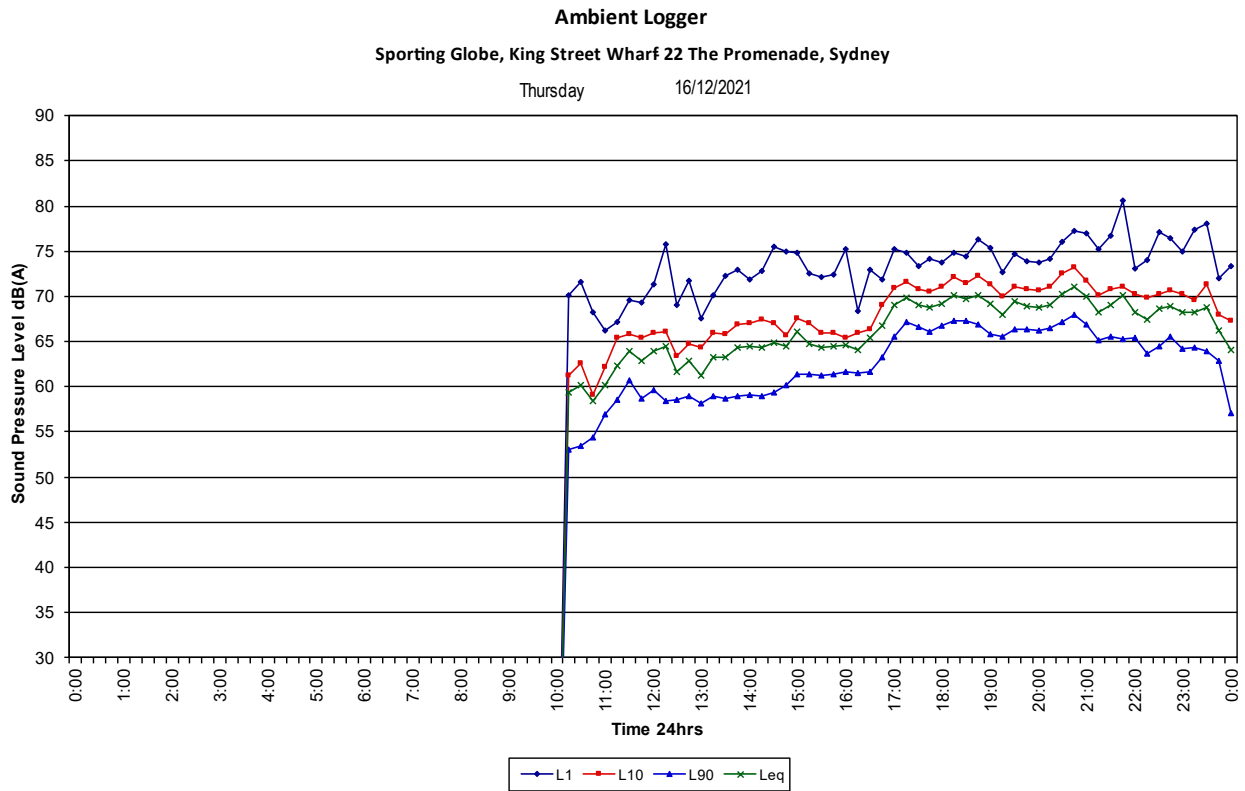
The results of the tests, calibrations and/or measurements included in this document are traceable to SI units.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

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Appendix C – Logger Graphs

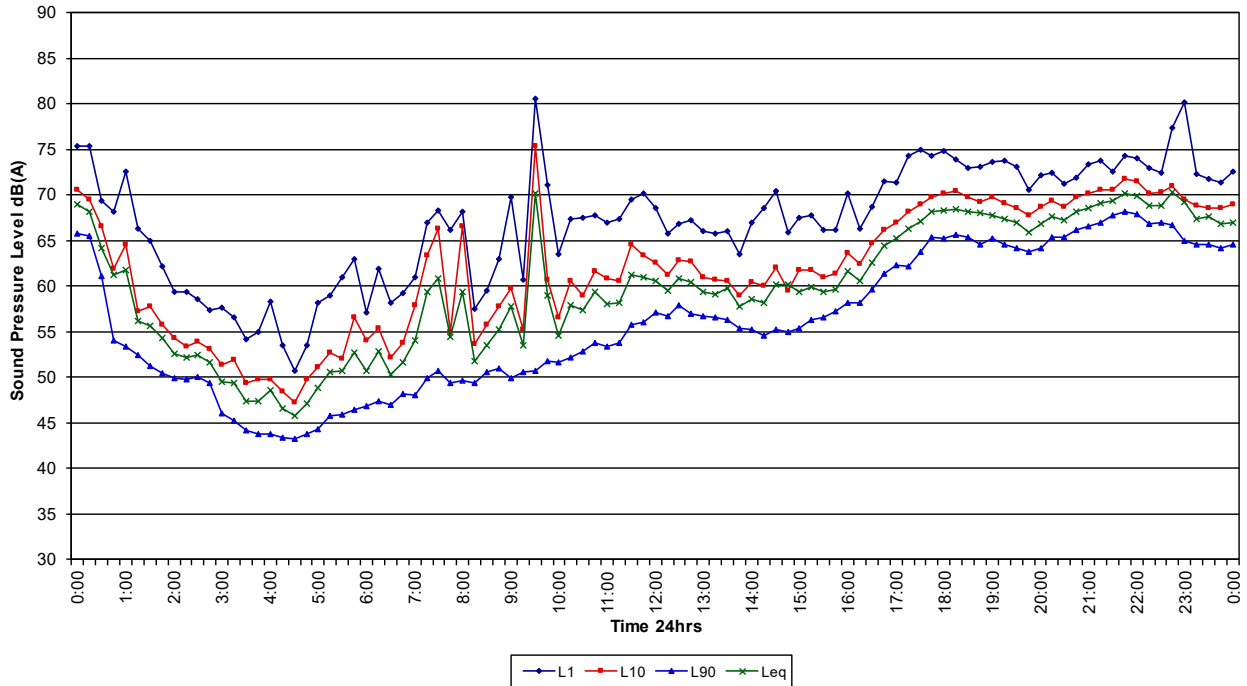




Ambient Logger

Sporting Globe, King Street Wharf - 22 The Promenade, Sydney

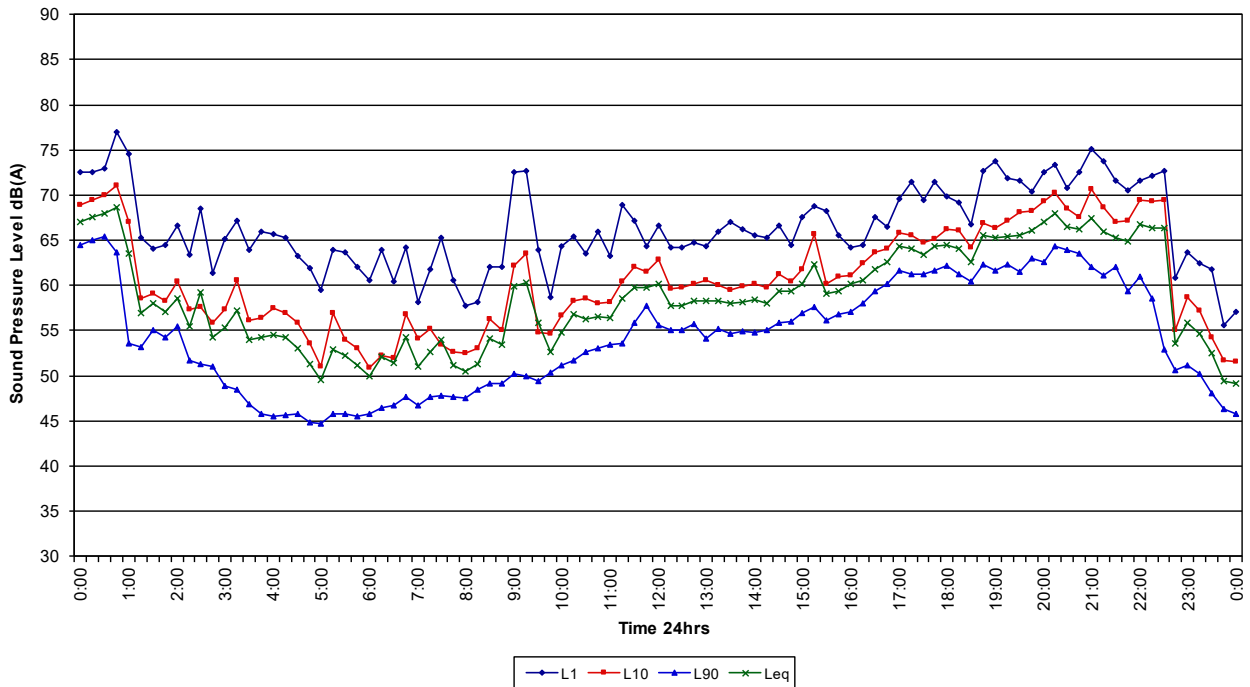
Saturday 18/12/2021



Ambient Logger

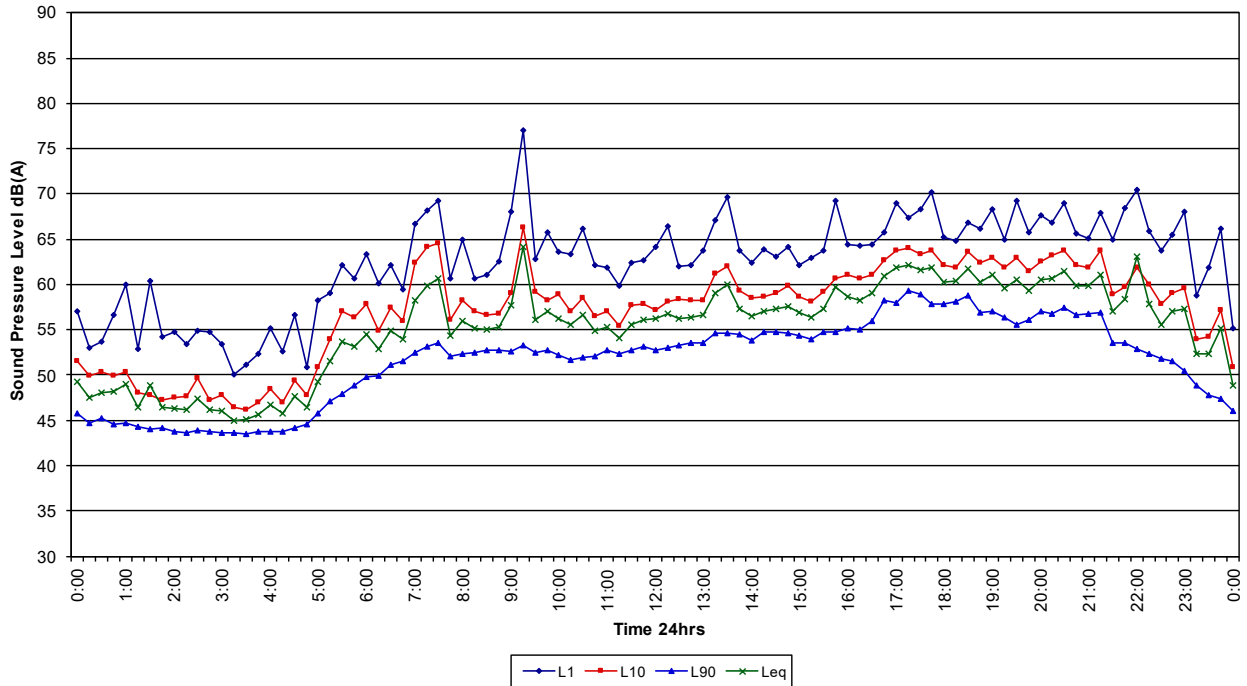
Sporting Globe, King Street Wharf 22 The Promenade, Sydney

Sunday 19/12/2021

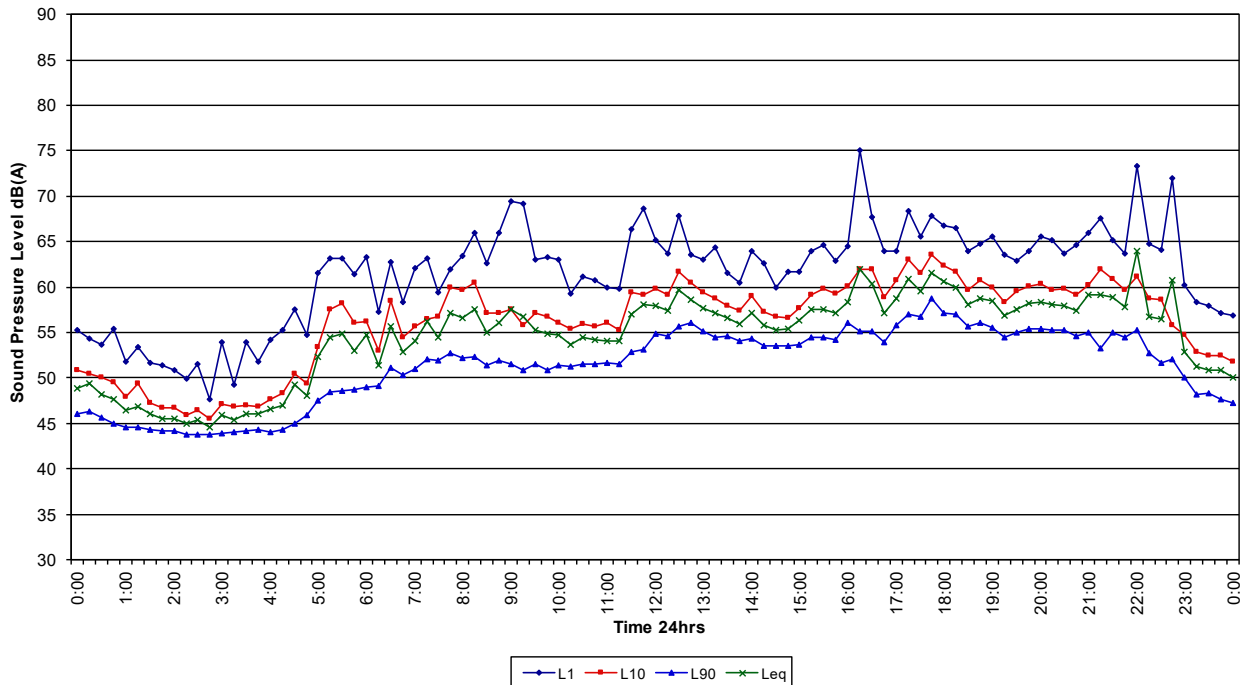




Ambient Logger
Sporting Globe, King Street Wharf 22 The Promenade, Sydney
Monday 20/12/2021



Ambient Logger
Sporting Globe, King Street Wharf 22 The Promenade, Sydney
Tuesday 21/12/2021

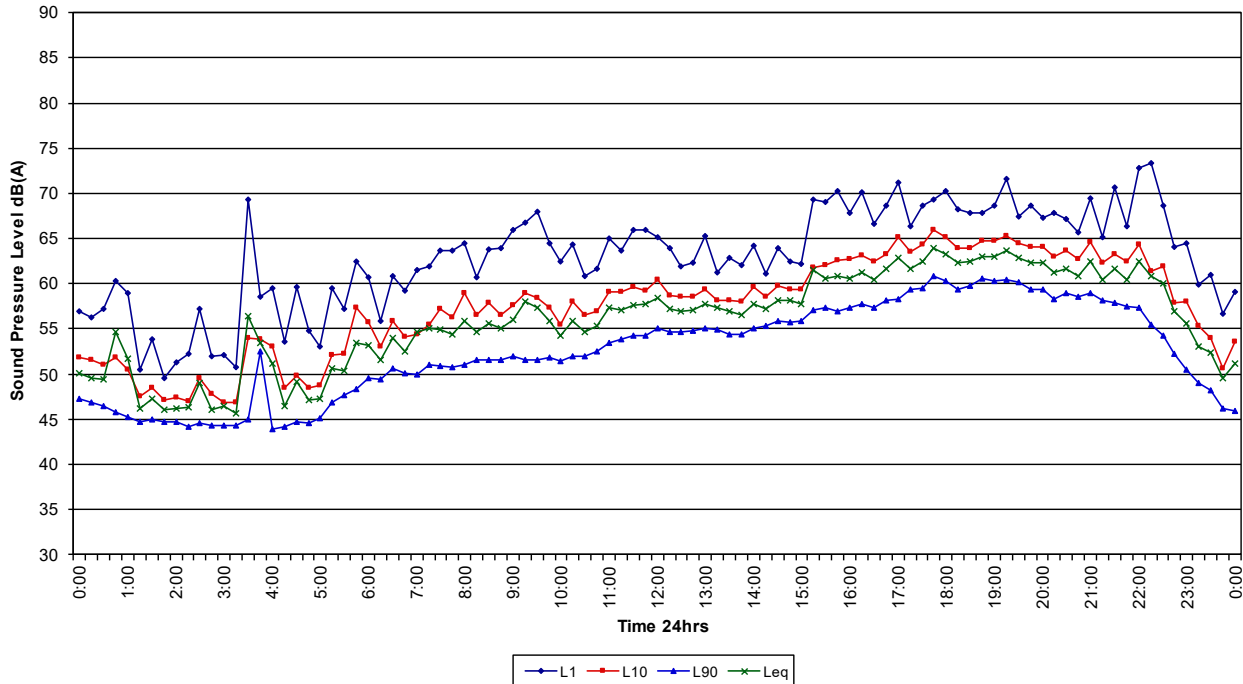




Ambient Logger

Sporting Globe, King Street Wharf 22 The Promenade, Sydney

Wednesday 22/12/2021



Ambient Logger

Sporting Globe, King Street Wharf 22 The Promenade, Sydney

Thursday 23/12/2021

