Ashton Coal

Monthly attended noise monitoring - December 2022

Prepared for Ashton Coal Operations Pty Ltd

December 2022

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Ashton Coal Operations Pty Ltd

E211129 RP#12

December 2022

Version	Date	Prepared by	Approved by	Comments
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Approved by

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Director
23 December 2022

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Appendices

Tables

Figures

1 Introduction

EMM Consulting Pty Limited (EMM) was engaged to complete monthly attended noise surveys on behalf of Ashton Coal Operations Pty Ltd (Ashton Coal).

The monitoring purpose was to address requirements of the approved Ashton Coal Noise Management Plan (NMP), prepared to satisfy the requirements of Development Consent DA 309-11-2001-I (DC) and Environment Protection License (EPL) 11879.

This report presents the results and findings of attended noise monitoring conducted on 14 December 2022.

The following material was referenced as part of this assessment:

- Department of Planning and Environment (DPE), Development Consent 309-11-2001-I, as modified on 6 July 2022 (current as of 14 December 2022);
- Environment Protection Authority (EPA), Environment Protection Licence 11879, as varied on 3 November 2022 (current as of 14 December 2022);
- Ashton Coal Project Noise Management Plan (NMP), approved by DPE on 23 September 2020 (current as of 14 December 2022);
- NSW EPA, Industrial Noise Policy (INP), 2000;
- NSW EPA, Industrial Noise Policy Application notes, 2017; and
- NSW EPA, Noise Policy for Industry (NPfI), 2017.

2 Glossary of acoustic terms

Several technical terms are discussed in this report. These are explained in Table 2.1.

Table 2.1 Glossary of acoustic terms

Term	Description
dB	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
L_{A1}	The 'A-weighted' noise level which is exceeded 1% of the time.
$L_{A1,1\ minute}$	The 'A-weighted' noise level exceeded for 1% of the specified time period of 1 minute.
L_{A10}	The 'A-weighted' noise level which is exceeded 10% of the time. It is approximately equivalent to the average of maximum noise level.
L_{A90}	Commonly referred to as the background noise level. The 'A-weighted' noise level exceeded 90% of the time.
L_{Aeq}	The energy average noise from a source. This is the equivalent continuous 'A-weighted' sound pressure level over a given period. The $L_{Aeq,15\ minute}$ descriptor refers to an L_{Aeq} noise level measured over a 15-minute period.
L_{Amin}	The minimum 'A-weighted' noise level received during a measuring interval.
L_{Amax}	The maximum root mean squared 'A-weighted' sound pressure level (or maximum noise level) received during a measuring interval.
L_{Ceq}	The equivalent continuous 'C-weighted' sound pressure level over a given period. The $L_{Ceq,15\ minute}$ descriptor refers to an L_{Ceq} noise level measured over a 15 minute period. C-weighting can be used to measure low frequency noise.
Day period	Monday – Saturday: 7 am to 6 pm, on Sundays and Public Holidays: 8 am to 6 pm.
Evening period	Monday – Saturday: 6 pm to 10 pm, on Sundays and Public Holidays: 6 pm to 10 pm.
Night period	Monday – Saturday: 10 pm to 7 am, on Sundays and Public Holidays: 10 pm to 8 am.
Temperature inversion	A meteorological condition where the atmospheric temperature increases with altitude.

It is useful to have an appreciation of decibels (dB), the unit of noise measurement. Table 2.2 gives an indication as to how an average person perceives changes in noise levels. Examples of common noise levels are provided in Figure 2.1.

Table 2.2 Perceived change in noise

Change in sound pressure level (dB)	Perceived change in noise in surrounding environment
up to 2	not perceptible
3	just perceptible
5	noticeable difference
10	twice (or half) as loud
15	large change
20	four times (or quarter) as loud

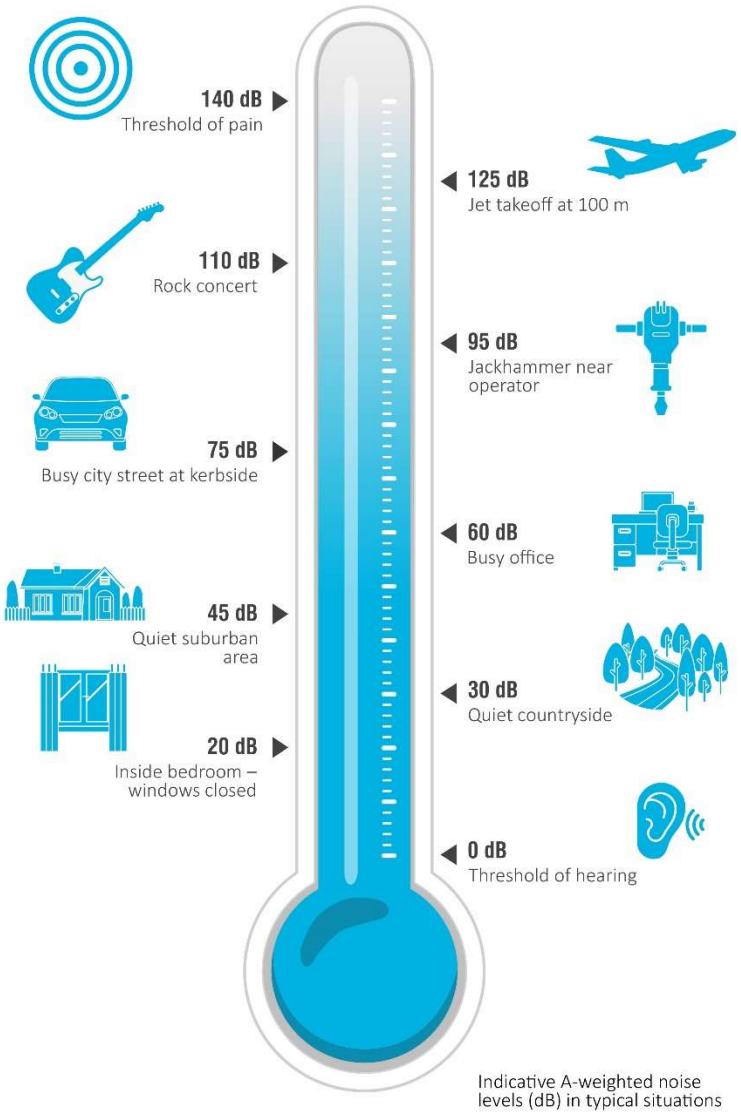


Figure 2.1 Common noise levels

3 Noise limits

3.1 Operational and sleep disturbance noise limits

Ashton Coal noise limits are provided in Table 1, Condition 2 of Appendix 6 of the DC and Condition L4.1 of the EPL. Extracts of the relevant sections of the DC and EPL pertaining to noise are provided in Appendix A and Appendix B, respectively. The approved NMP adopts three attended noise monitoring locations that are representative of residences outlined in the DC. The noise monitoring locations and relevant criteria are summarised in Table 3.1.

Table 3.1 Noise impact assessment criteria

Monitoring location	Day $L_{Aeq,15\ minute}$, dB	Evening $L_{Aeq,15\ minute}$, dB	Night $L_{Aeq,15\ minute}$, dB	Night $L_{A1,1\ minute}$, dB
N2	38	38	36	46
N3	38	38	36	46
N4	38	38	36	46

The DC and the EPL specify the following meteorological conditions under which noise limits do not apply:

- during periods of rain or hail;
- average wind speed at microphone height exceeds 5 metres per second (m/s);
- wind speeds greater than 3 m/s at 10 metres above ground level; and
- temperature inversion conditions greater than 3°C/100m.

For this assessment, the recorded L_{Amax} has been used as a conservative estimate of the $L_{A1,1\ minute}$. The INP application notes state that the EPA accepts sleep disturbance analysis based on either the $L_{A1,1\ minute}$ or L_{Amax} metrics (EPA 2013), with use of L_{Amax} resulting in a more conservative assessment.

The DC and EPL state that modification factor corrections in the application notes to the INP (updated in 2017) shall be applied to the measured mine noise levels where applicable. The application notes to the INP state that Fact Sheet C of the NPfI (EPA 2017) now applies regarding the application of modifying factor corrections.

3.2 Cumulative noise criteria

Ashton Coal cumulative noise limits are provided in Condition 5 and Condition 6 of Schedule 3 of the DC. An extract of the conditions relevant to cumulative noise criteria is provided here.

> *5. The Applicant must implement all reasonable and feasible measures to ensure that the noise generated by the Ashton Mine Complex combined with the noise generated by other mines in the vicinity does not exceed the criteria in Table 4 at any residence on any privately-owned land or on more than 25 per cent of any privately-owned land (except for the noise affected residential receivers in Table 1).*

Table 4: Cumulative Noise Criteria dB(A) $L_{Aeq\ (period)}$

Location	Day	Evening	Night
Camberwell Village	55	45	40
All other privately-owned land	50	45	40

> *Cumulative noise is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.*

> *6. If the cumulative noise generated by the Ashton Mine Complex combined with the noise generated by other coal mines in the vicinity exceeds the criteria in Table 5 at any residence on privately-owned land or more than 25 per cent of any privately-owned land (except for the noise-affected residential receivers in Table 1), then upon receiving a written request from the landowner, the Applicant must, together with the relevant mines, acquire the land on as equitable basis as possible, in accordance with the procedures in conditions 7 and 8 of Schedule 4.*

Table 5: Cumulative Noise Acquisition Criteria dB(A) $L_{Aeq\ (period)}$

Location	Day	Evening	Night
Camberwell Village	60	50	45
All other privately-owned land	55	50	45

> *Cumulative noise is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.*

3.3 Modifying factors

The EPA 'Noise Policy for Industry' (NPfI, 2017) was approved for use in NSW in October 2017. For assessment of modifying factors, the NPfI immediately superseded the 'Industrial Noise Policy' (INP, 2000), as outlined in the EPA document 'Implementation and transitional arrangements for the Noise Policy for Industry' (2017). Assessment and reporting of modifying factors has been undertaken in accordance with Fact Sheet C of the NPfI.

4 Assessment methodology

4.1 Attended noise monitoring

To quantify noise emissions from Ashton Coal, 15-minute attended noise monitoring surveys were completed at representative locations as per the approved NMP. Noise monitoring locations and their coordinates are listed in Table 4.1 and are shown in Figure 4.1.

Table 4.1 Attended noise monitoring locations

Monitoring location	Description	MGA56	
		Easting	Northing
N2	Camberwell Village (west)	320297	6405670
N3	Camberwell Village (north-east)	320554	6405839
N4	South of New England Highway	319776	6404101

Attended noise monitoring is scheduled to be "unannounced" and, to EMM's knowledge, Ashton Coal were not aware of the monitoring prior to its commencement. Noise monitoring is avoided during any scheduled downtime or major maintenance. Information provided by Ashton Coal after completion of the noise monitoring confirmed that regular operations were occurring during the monitoring period.

Where possible throughout each survey, the operator has quantified the contribution of each significant noise source. This was done by matching audible sounds with the response of the analyser (where applicable) and/or via post-analysis of data (eg low pass frequency filtering).

4.2 Instrumentation

A Rion NA-28 sound level meter (s/n 00701424) was used to conduct 15-minute attended measurements and record 1/3 octave frequency and statistical noise indices. The sound analyser was calibrated before and on completion of the survey using a Pulsar 106 acoustic calibrator (s/n 79631). Instrumentation calibration certificates are provided in Appendix C.

4.3 Attended noise monitoring exceedance procedure

Ashton Coal has developed an attended monitoring exceedance procedure that is to be implemented if measurements show Ashton Coal noise emissions are above any relevant criterion. This response plan is implemented if site noise levels are determined to be above a relevant criterion which was applicable due to suitable meteorological conditions. The following noise management initiatives are implemented:

- Consultant will record the reading and advise Ashton Coal of the exceedance. Ashton Coal will implement remedial action as required.
- A follow up measurement is to be conducted (within 75 minutes after the first measurement and no earlier than 10 pm).
- If the follow up measurement indicates that site noise levels are above a relevant criterion and that noise limits are applicable, the consultant will record the result, note the site has failed and is deemed a 'noise affected night' at that location and move on to the next monitoring location. An additional monitoring test should be scheduled to be undertaken at the same location within one week.
- If the follow up measurement indicates that site noise levels are below relevant noise criteria and that noise limits are applicable, the consultant will record the result, note the site has passed and move on to the next monitoring location. An additional monitoring test should be scheduled to be undertaken at the same location within one week.

4.4 Determination of stability category

As per Condition L4.4, this assessment determined the stability categories throughout the attended monitoring period using the direct measurement method as per Fact Sheet D of the Noise Policy for Industry (2017).

The temperature lapse rate between the two weather stations (M1 – Sentinex Unit 40 located in Camberwell Village and M2 – Ashton Coal 'repeater' meteorological station located in the north-eastern open cut (NEOC) area) was calculated using the following formula:

$$\text{Temperature lapse rate} = (\Delta T) \times (100/(\Delta H))$$

Where:

- ΔT = temperature measured at M2 (at 10 metres above ground level) minus temperature measured at M1 (at 10 metres above ground level); and
- ΔH = the vertical height difference between M2 and M1 (equal to 73 metres).

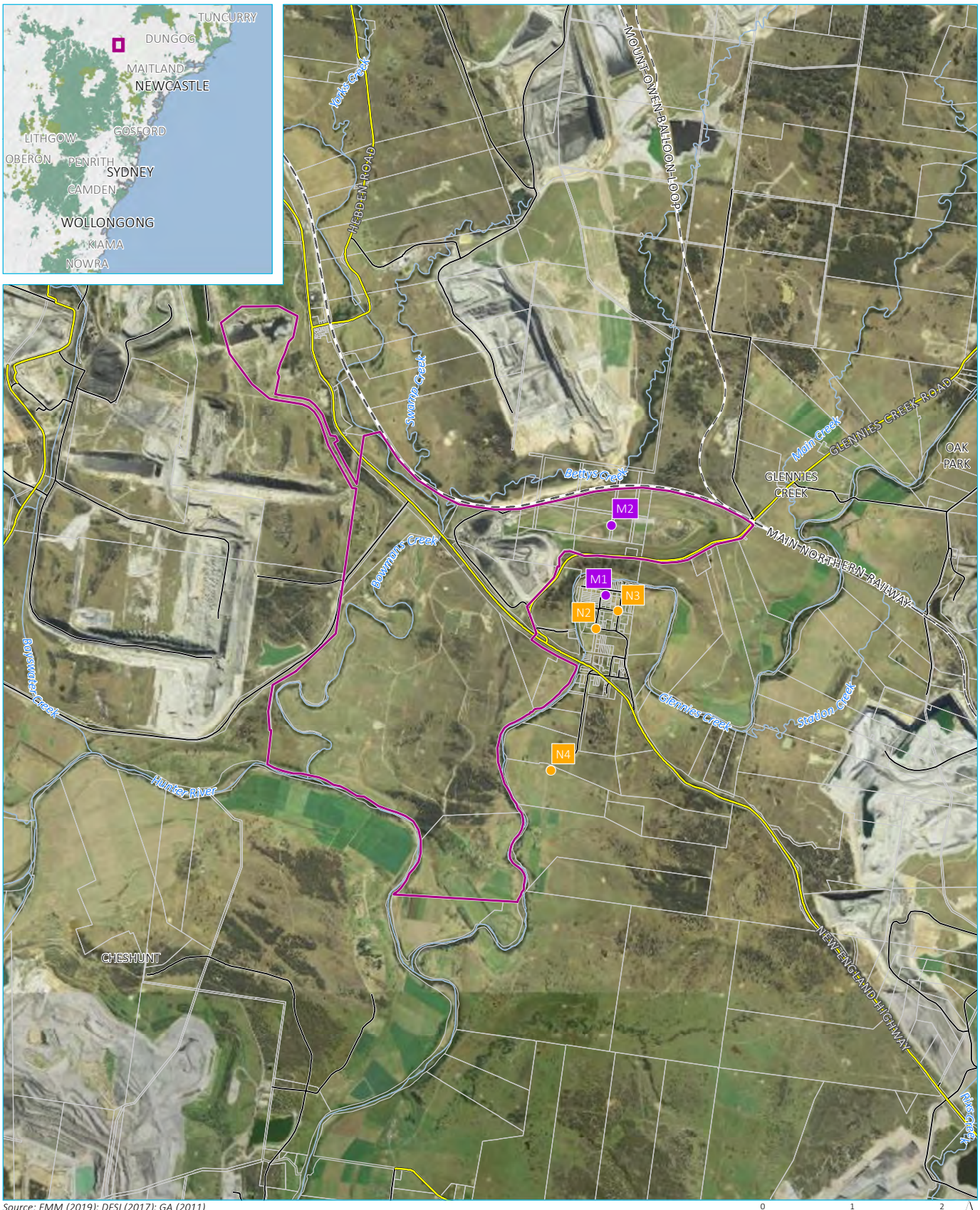
Table D2 of the NPfI (EPA 2017) is reproduced in Table 4.2 and presents the stability categories and associated ranges in temperature lapse rates.

Table 4.2 Stability categories and temperature lapse rates

Stability category	Temperature lapse rate (ΔT) (°C/100 m)
A	ΔT < -1.9
B	-1.9 ≤ ΔT < -1.7
C	-1.7 ≤ ΔT < -1.5
D	-1.5 ≤ ΔT < -0.5
E	-0.5 ≤ ΔT < 1.5
F	1.5 ≤ ΔT < 4.0
G	ΔT ≥ 4.0

Source: NPfI (EPA 2017).

Other meteorological data, such as wind speed, has been sourced directly from meteorological station M2 since it is more representative of the weather conditions nearer to the Ashton Coal noise sources.



Source: EMM (2019); DFSI (2017); GA (2011)

0 1 2 km

GDA 1994 MGA Zone 56

N

KEY

- Site boundary
- Noise monitoring location
- Meteorological station
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Cadastral boundary

Noise monitoring locations and Ashton colliery boundary

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Figure 4.1

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5 Review of data and discussion

5.1 Summary

Results of attended noise measurements are summarised in Table 5.1. Ashton Coal contribution and total mine noise were determined for each survey using in-field observations and post-analysis of data as required (eg removing higher frequencies that are not mine related). Attended monitoring was completed on 14 December 2022. Noise from Ashton Coal operations was audible during all measurements.

Meteorological data for the monitoring period was sourced from Ashton Coal's two weather stations (M1 and M2) to determine applicability of criteria in accordance with the DC and EPL. Noise limits were found to be applicable during all three measurements.

All measurements were evaluated for potential modifying factors in accordance with the NPfI. Specific methodology for assessment of each modifying factor is outlined in Fact Sheet C of the NPfI.

If applicable, modifying factors have been reported and added to measured site-only L_{Aeq} noise levels when meteorological conditions satisfied requirements for site noise criteria to be applicable. Low-frequency modifying factors have only been applied to site-only L_{Aeq} levels if Ashton Coal was the only contributing low-frequency noise source. Ashton Coal noise contributions and cumulative mine noise contributions were below (ie complied with) the relevant noise limits at all monitoring locations.

Table 5.1 Ashton Coal attended noise monitoring results – December 2022

Location	Date	Start time	Total noise levels, dB							Site contributions, dB			Noise limits, dB		Meteorological conditions[3] Limits apply? (Y/N)	Exceedance, dB	Comments
			L_{Amin}	L_{A90}	L_{Aeq}	L_{A10}	L_{A1}	L_{Amax}	L_{Ceq}	Mod. Factor[1]	L_{Aeq}	L_{Amax}[2]	L_{Aeq}	L_{Amax}[2]			
N2	14/12	22:08	35	41	50	54	58	61	59	Nil	<34	35	36	46	1.4 m/s @ 215° E class stability 1.4°C/100m VTG Y	Nil	**Ashton Coal mine rumble audible in traffic lulls with engine revs, reverse clackers and dozer tracks audible on occasion.** Traffic on the New England Highway, insects and frogs consistently audible.
N3	14/12	22:29	35	37	43	47	52	55	54	Nil	NM (<36)	37	36	46	0.4 m/s @ 226° E class stability 0.4°C/100m VTG Y	Nil	**Ashton Coal mine rumble audible in periods of lower traffic with dropping of material and the dozer in stockpile audible on occasion.** Traffic on the New England Highway, insects and frogs consistently audible. Noise from livestock occasionally audible.
N4	14/12	22:55	24	27	32	35	40	48	50	Nil	<30	34	36	46	1.8 m/s @ 250° F class stability 1.8°C/100m VTG Y	Nil	**Ashton Coal mine rumble consistently audible during traffic lulls with dozer exhaust and engine surges audible on occasion.** Insects, and frogs consistently audible. Traffic on the New England Highway frequently audible. Dogs barking occasionally audible.

Notes:

1. Modifying factor correction for low frequency, tonal or intermittent noise in accordance with Fact Sheet C of the NPfI).
2. For assessment purposes the L_{Amax} and the $L_{A1,1\ minute}$ are interchangeable.
3. Meteorological data were taken as an average over 15 minutes from the Ashton Coal weather station (Refer to Section 5.1). VTG assumes the temperature sensors on the two weather stations are in proper working order and calibrated to manufacturers requirements.
4. IA = inaudible.
5. NM = not measurable.
6. N/A = not applicable.

5.2 N2 - Camberwell Village (west)

Ashton Coal operations were consistently audible in traffic lulls during the measurement. The Ashton Coal mine noise contribution was estimated at up to <34 dB $L_{Aeq,15\ minute}$. Dozer tracks from site generated an estimated 35 dB L_{Amax}. Ashton Coal noise contributions complied with the DC and EPL noise limits.

Other noise sources included insects, frogs, and traffic on the New England Highway.

Other mining operations in the vicinity were inaudible during the operator-attended noise survey at monitoring location N2. The cumulative mining noise level was estimated to be <31 dB $L_{Aeq,night}$ (ie Ashton mine noise of <34 dB $L_{Aeq,15\ minute}$ less 3 dB as per NPfI methodology) which is below the relevant 40 dB $L_{Aeq,night}$ limit. A graph of the total noise levels measured in each one-third octave frequency bands is shown in Figure 5.1.

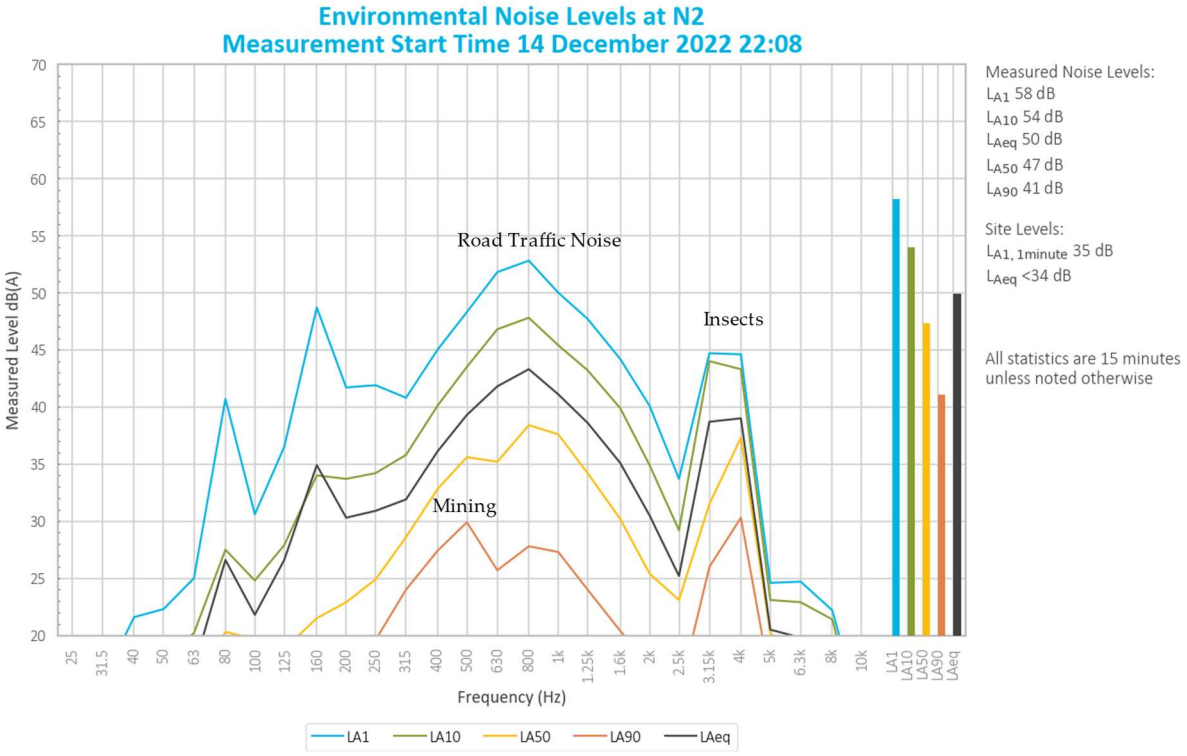

Figure 5.1 N2 total measured one-third octave band frequencies

5.3 N3 - Camberwell Village (north-east)

Ashton Coal operations were audible during lower periods of road traffic noise during the measurement. However, road traffic noise was persistent during the entire measurement, and a noise contribution for Ashton Coal was not measurable. Engine revs from site generated an estimated 37 dB L_{Amax}. Given the measured site related L_{Amax} noise level, Ashton Coal average noise was lower (ie less than 36dB $L_{Aeq,15\ minute}$) and therefore contributions complied with the DC and EPL noise limits.

Other noise sources included insects, frogs, traffic on the New England Highway, and noise from livestock.

Other mining operations in the vicinity were inaudible during the operator-attended noise survey at monitoring location N3. The cumulative mining noise level was estimated to be <33 dB $L_{Aeq,night}$ (ie Ashton mine noise of <36 dB $L_{Aeq,15\ minute}$ less 3 dB as per NPfI methodology) which is below the relevant 40 dB $L_{Aeq,night}$ limit. A graph of the total noise levels measured in the one-third octave frequency bands is shown in Figure 5.2.

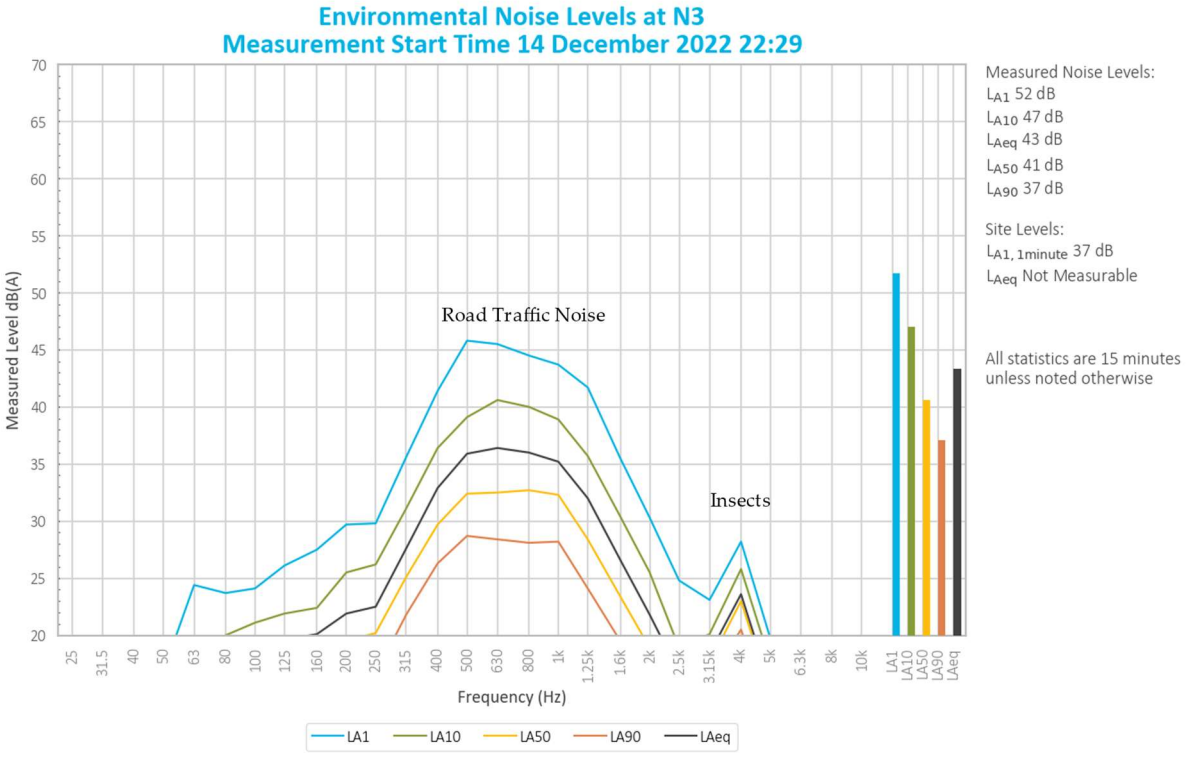

Figure 5.2 N3 total measured one-third octave band frequencies

5.4 N4 - South of New England Highway

Ashton Coal operations were consistently audible in traffic lulls during the measurement. The Ashton Coal mine noise contribution was estimated at up to <30 dB $L_{Aeq,15\ minute}$. Dozer exhaust noise from site generated an estimated 34 dB L_{Amax}. Ashton Coal noise contributions complied with the DC and EPL noise limits.

Other noise sources included insects and frogs, traffic on the New England Highway and dogs barking.

Other mining operations in the vicinity were inaudible during the operator-attended noise survey at monitoring location N3. The cumulative mining noise level was estimated to be <27 dB $L_{Aeq,night}$ (ie Ashton mine noise of <30 dB $L_{Aeq,15\ minute}$ less 3 dB as per NPfI methodology) which is below the relevant 40 dB $L_{Aeq,night}$ limit. A graph of the total noise levels measured in the one-third octave frequency bands is shown in Figure 5.3.

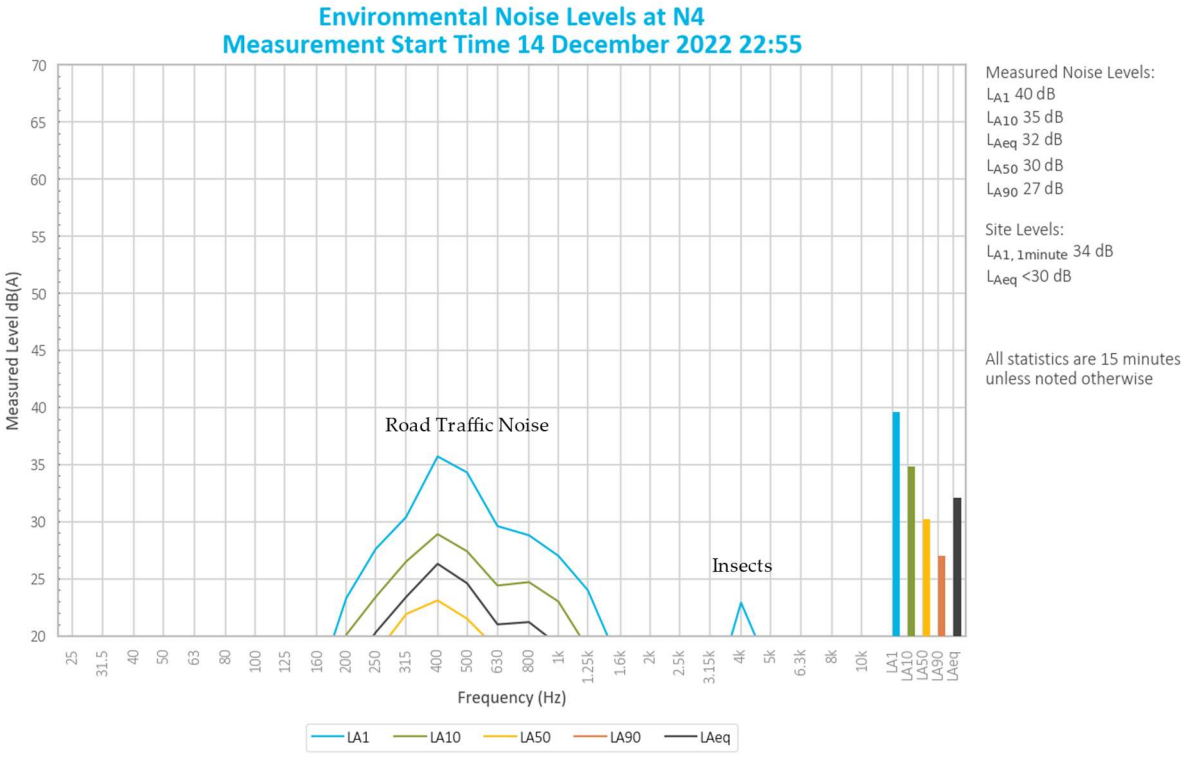

Figure 5.3 N4 total measured one-third octave band frequencies

6 Conclusion

EMM has completed a review of mine noise from Ashton Coal within the surrounding community based on attended measurements conducted on 14 December 2022.

The applicability of noise limits was assessed with reference to Ashton Coal's two meteorological stations M1 and M2 located to the east of and on the site, respectively. Noise limits were found to be applicable during all three measurements.

The assessment of noise from site included consideration of modifying factors for noise characteristics, where relevant, and in accordance with the DC and EPL.

Both Ashton Coal noise and cumulative mine noise were below (satisfied) the relevant noise limits at all monitoring locations during this round of monitoring.

References

Ashton Coal Noise Management Plan, 2017.

NSW Department of Planning, Industry and Environment, Development Consent DA309-11-2001-I, 2016.

NSW Environment Protection Authority, Environment Protection License 11879.

NSW Environment Protection Authority, Industrial Noise Policy, 2000.

NSW Environment Protection Authority, Industrial Noise Policy Application notes, 2017.

NSW Environment Protection Authority, Noise Policy for Industry, 2017.

Appendix A
Project approval extract

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APPENDIX 6

ALTERNATE NOISE CONDITIONS

NOISE

Application

1. Conditions 2 to 3 below have effect during times when open cut mining operations are not being undertaken at the Ashton Mine Complex, in the opinion of the Planning Secretary.

Noise Criteria

2. Except for the noise-affected land in Table 1 of Schedule 3, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.

Table 1: Noise Criteria dB(A)

Receiver No.	***Receiver***	***Day*** ($L_{Aeq\ (15min)}$)	***Evening*** ($L_{Aeq\ (15min)}$)	***Night*** ($L_{Aeq\ (15min)}$)	***Night*** ($L_{A1\ (1\ min)}$)
-	All privately-owned land	38	38	36	46

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 8 sets out the requirements for evaluating compliance with these criteria.

However, these noise criteria do not apply if the Applicant has an agreement with the relevant owner/s of the residence/land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

Additional Noise Mitigation Measures

3. Upon receiving a written request from the owner of any residence on any privately-owned land where subsequent operational noise monitoring shows the noise generated by the development exceeds the noise limits in Table 2, the Applicant must implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner.

If within 3 months of receiving this request from the landowner, the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Planning Secretary for resolution.

Table 2: Additional Noise Mitigation Criteria dB(A) $L_{Aeq\ (15min)}$

Receiver No.	***Receiver***	***Day*** ($L_{Aeq\ (15min)}$)	***Evening*** ($L_{Aeq\ (15min)}$)	***Night*** ($L_{Aeq\ (15min)}$)
-	All privately-owned land	38	38	38

Notes:

- *Noise generated by the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.*
- *For this condition to apply, the exceedance of the criteria must be systemic.*

APPENDIX 8

NOISE COMPLIANCE ASSESSMENT

Compliance Monitoring

1. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.

2. Data collected for the purposes of determining compliance with the relevant conditions of this approval is to be excluded under the following meteorological conditions:
   a) during periods of rain or hail;
   b) average wind speed at microphone height exceeds 5 m/s;
   c) wind speeds greater than 3 m/s measures at 10 m above ground level; and
   d) temperature inversion conditions greater than 3°C/100m.

3. Unless otherwise agreed with the Planning Secretary, this monitoring is to be carried out in accordance with the relevant requirements relating for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:
   a) monitoring locations for the collection of representative noise data;
   b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
   c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

4. To the extent that there is any inconsistency between the Industrial Noise Policy and the requirements set out in this Appendix, the Appendix prevails to the extent of the inconsistency.

Determination of Meteorological Conditions

5. Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be that recorded by the meteorological station located in the vicinity of the site (as required by condition 18 of Schedule 3).

Appendix B
EPL extract

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14	Noise monitoring	Monitoring at coordinates 320297, 6405670 (Easting, Northing), identified as N2 on Figure 2 and representative of Noise Assessment Group 1.
15	Noise monitoring	Monitoring at coordinates 319776, 6404101 (Easting, Northing), identified as N4 on Figure 2 and representative of Noise Assessment Group 3.
32	Meteorological Station – to determine meteorological conditions for noise monitoring	Monitoring of temperature at 'M1' at coordinates 320259, 6405971 (Easting, Northing).

P1.5 For the purposes of Condition P1.1, P1.2 and P1.3, Figure 1 refers to the plan titled "Ashton Underground Mine Environment Protection licence 11879 Premises Boundary, Surface Infrastructure" dated 30/08/19 (EPA reference DOC19/761196).

P1.6 For the purpose of Condition P1.4, Figure 2 refers to the plan titled "Ashton Underground Mine Environment Protection licence 11879 Premises Boundary, Monitoring" dated 30/08/19 (EPA reference DOC19/761196).

P1.7 The datum for grid references in this Licence is the Geodetic Datum of Australia 1994 (GDA94), Zone 56.

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Concentration limits

L2.1 Flares must be operated by the licensee such that there is no visible emission other than for a total period of no more than 5 minutes in any 2 hours, except for heat haze.

L3 Waste

L3.1 The licensee must not cause, permit or allow any waste to be received at the premises unless specified in this licence.

L3.2 The Licensee must not dispose of waste on the premises unless authorised by a condition of this Licence.

L4 Noise limits

L4.1 Noise from the premises must not exceed the noise limits specified in the table below.

Residences referenced in this table are from the consent DA 309-11-2001-i and summarised in the EPA

reference DOC19/761196.

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night LAeq(15 minute)	Night LAeq(1 minute)
EPA Point 13	38	38	36	46
EPA Point 14	38	38	36	46
EPA Point 15	38	38	36	46
All other privately owned residences	38	38	36	46

L4.2 For the purpose of Condition L4.1:
a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
b) Evening is defined as the period from 6pm to 10pm, and
c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L4.3 The noise emission limits identified in condition L4.1 apply under the following meteorological conditions:

a) wind speeds up to 3m/s at 10m above ground level; and
b) temperature inversion conditions up to 3 degrees C/100m.

L4.4 For the purposes of condition L4.1:

a) Data recorded by the closest and most representative meteorological station installed on the premises at EPA Identification Point 12 must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) are to be determined by the methods referred to in Fact Sheet D of the Noise Policy for Industry (2017) using EPA Identification Points 12 and 32.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

Appendix C
Calibration certificates

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Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter
IEC 61672-3.2013
Calibration Certificate

Calibration Number C21344

Client Details	Global Acoustics Pty Ltd 12/16 Huntingdale Drive Thornton NSW 2322
Equipment Tested/ Model Number :	Rion NA-28
Instrument Serial Number :	00701424
Microphone Serial Number :	01916
Pre-amplifier Serial Number :	01463

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	20.6°C	**Ambient Temperature :**	22.4°C
Relative Humidity :	47%	**Relative Humidity :**	44%
Barometric Pressure :	101.05kPa	**Barometric Pressure :**	100.91kPa

Calibration Technician :	Jeff Yu	**Secondary Check:**	Harrison Kim
Calibration Date :	2 Jun 2021	**Report Issue Date :**	2 Jun 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	*Pass*
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.

As public evidence was available, from an independent testing organisation responsible for approving the results of pattern evaluation test performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC 61672-1:2013.

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
125Hz	*±0.12dB*	*Temperature*	*±0.2°C*
1kHz	*±0.11dB*	*Relative Humidity*	*±2.4%*
8kHz	*±0.13dB*	*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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Sound Calibrator

IEC 60942-2017

Calibration Certificate

Calibration Number C21341

Client Details Global Acoustics Pty Ltd
12/16 Huntingdale Drive
Thornton NSW 2322

Equipment Tested/ Model Number : Pulsar Model 106
Instrument Serial Number : 79631

Atmospheric Conditions
Ambient Temperature : 22.7°C
Relative Humidity : 47.5%
Barometric Pressure : 100.64kPa

Calibration Technician : Jeff Yu
Calibration Date : 26 May 2021
Secondary Check: Harrison Kim
Report Issue Date : 26 May 2021

Approved Signatory : Ken Williams

Characteristic Tested	Result
Generated Sound Pressure Level	*Pass*
Frequency Generated	*Pass*
Total Distortion	*Pass*

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.02	1000.40

The sound calibrator has been shown to conform to the class 2 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed..

Least Uncertainties of Measurement -

Specific Tests		Environmental Conditions	
Generated SPL	*±0.14dB*	*Temperature*	*±0.2°C*
Frequency	*±0.09%*	*Relative Humidity*	*±2.4%*
Distortion	*±0.09%*	*Barometric Pressure*	*±0.015kPa*

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

* The tests <1000 kHz are not covered by Acoustic Research Labs Pty Ltd NATA accreditation.

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

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