

From: [McGlinn, Ian](#)
To: [TCCS_FreedomOfInformation](#)
Cc: [Pillig, Carl](#); [Selmes, Jenny](#)
Subject: FW: FOI Act - information request
Date: Monday, 31 August 2020 10:40:00 AM

OFFICIAL

Morning, please find below an FOI from [REDACTED] we will start getting documents

Regards

Ian McGlinn | Executive Branch Manager | Public Transport Operations

Phone: 02 620 78000 | Mobile: [REDACTED] | Email: ian.mcglinn@act.gov.au

Transport Canberra and Business Services | ACT Government

480 Northbourne Avenue, Dickson | GPO Box 158 Canberra ACT 2601 | www.cityservices.act.gov.au | www.transport.act.gov.au

Connected services for the people of Canberra



From: [REDACTED]@hotmail.com>
Sent: Monday, 31 August 2020 9:23 AM
To: McGlinn, Ian <Ian.McGlinn@act.gov.au>
Cc: Pillig, Carl <Carl.Pillig@act.gov.au>
Subject: Re: FOI Act - information request

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Thanks Ian

Regards

[REDACTED]

From: McGlinn, Ian <Ian.McGlinn@act.gov.au>
Sent: August 30, 2020 4:13 PM
To: [REDACTED]@hotmail.com>
Cc: Pillig, Carl <Carl.Pillig@act.gov.au>
Subject: RE: FOI Act - information request

OFFICIAL

Morning [REDACTED] I will forward to our FOI team and arrange for the report to be provided

Regards

Ian McGlinn | Executive Branch Manager | Public Transport Operations

Phone: 02 620 78000 | Mobile: [REDACTED] | Email: ian.mcglinn@act.gov.au

Transport Canberra and Business Services | ACT Government

480 Northbourne Avenue, Dickson | GPO Box 158 Canberra ACT 2601 | www.cityservices.act.gov.au | www.transport.act.gov.au

Connected services for the people of Canberra



From: [REDACTED] <[\[REDACTED\]@hotmail.com](mailto:[REDACTED]@hotmail.com)>

Sent: Sunday, 30 August 2020 7:57 PM

To: McGlinn, Ian <ian.McGlinn@act.gov.au>

Cc: Pillig, Carl <Carl.Pillig@act.gov.au>

Subject: FOI Act - information request

CAUTION: This email originated from outside of the ACT Government. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Ian

As discussed at one of our two meetings, I understand that you commissioned a noise level report which gathered data on the decibel levels being emitted from the Fraser West Terminus. I understand that this study used sound recording technology from the front of my residence at [REDACTED]. Under the Freedom of Information Act, I request a copy of this report.

If you are not the correct person to action this email, I ask that you please forward to the appropriate officer.

I would be grateful for a copy of the report by email to this email address as soon as practicable.

Please let me know if any questions.

Regards

[REDACTED]

[REDACTED]

This email, and any attachments, may be confidential and also privileged. If you are not the intended recipient, please notify the sender and delete all copies of this transmission along with any attachments immediately. You should not copy or use it for any purpose, nor disclose its contents to any other person.



ACT
Government

Transport Canberra and
City Services

FREEDOM OF INFORMATION COVERSHEET

The following information is provided pursuant to section 28 of the *Freedom of Information Act 2016*.

FOI reference: TCCSFOI 20-069

Information to be published	Status
1. Access application	Published
2. Decision notice and schedule	Published
3. Documents	Published
4. Additional information identified	n/a
5. Fees	n/a
6. Processing time (in working days)	37 days
7. Decision made by Ombudsman	n/a
8. Additional information identified by Ombudsman	n/a
9. Decision made by ACAT	n/a
10. Additional information identified by ACAT	n/a

By email: [REDACTED] [hotmail.com](mailto:[REDACTED]@hotmail.com)>

Dear [REDACTED]

Freedom of Information Request - Reference 20-069

I refer to your application received by Transport Canberra and City Services (TCCS) on 31 August 2020. It is my understanding you are seeking to access:

“a noise level report which gathered data on the decibel levels being emitted from the Fraser West Terminus”.

I am an Information Officer appointed by the Director-General under section 18 of the Act to deal with access applications made under Part 5 of the Act.

A decision on access to government information is due to you by 20 October 2020.

Decision on access

A search of records held by TCCS has been completed and one record (18 pages) has been identified as relevant to your application.

On 25 September 2020, TCCS wrote to you advising that third party consultation was undertaken. This is because the information within this document is likely to be of a concern to the business affairs to that business. I can confirm that this process is now complete.

In accordance with section 17 of the Act, I have considered the public interest in relation to information within this document and have provided you with partial access to this document at Attachment A. Deletions have been applied to information under 35(1)(c) of the FOI Act. This is because the information is contrary to the public interest. My decision is detailed further in the following statement of reasons.

Statement of Reasons

In making my decision on disclosing government information, I must identify all relevant factors in schedule 2 of the FOI Act and determine, on balance, where the public interest lies. Further to this, I have also taken into consideration any objections made under third party consultation to the disclosure of information.

In reaching my access decision, I have taken the following into account:

Factors favouring disclosure in the public interest (Schedule 2.1)

- Schedule 2.1(a) (ii) - contribute to positive and informed debate on important issues or matters of public interest.
- Schedule 2.1(a)(iii) - inform the community of the government's operations, including the policies, guidelines and codes of conduct followed by the government in its dealings with members of the community;
- Schedule 2.1(a)(viii) - reveal the reason for a government decision and any background or contextual information that informed the decision; and
- Schedule 2.1(a) (xi) – reveal environmental or health risks or measures relating to public health and safety.

Factors favouring non-disclosure (Schedule 2.2)

- Schedule 2.2 (a)(ii) – prejudice the protection of an individual's right to privacy or any other right under the *Human Rights Act 2004*; and
- Schedule.2(a)(xi) - prejudice trade secrets, business affairs or research.

I have considered the public interest in relation to information about noise emissions resulting from government services, and find that information relating to the outcome of the report can inform the public on the government's operations and can reveal the reason for a government decision.

However, in assessing the public interest on the disclosure of some information in the document, personal information about third parties were identified. Personal information means information or an opinion whether true or not about an individual whose identity is apparent or can be ascertained from the information or opinion. The *Information Privacy Act 2014* prescribes how government collects, uses, shares and stores this information.

As a result of consultation with the relevant third party, I am in agreeance with their objection to disclose the personal information about their staff, or staff of businesses they have engaged with. It is my understanding that this information is not currently available to the public. I have considered the likelihood that disclosing this information would prejudice an individual's right to privacy or any other right under the *Human Rights Act 2004* (Human Rights Act).

In this instance, I find that the disclosure of the personal information within this document is contrary to the public interest. The records enclosed at Attachment A are provided with deletions applied to information I consider is contrary to the public interest to disclose.

Charges

No fee applies as the number of pages you are being provided access to is within the fee-free threshold.

Disclosure Log

In accordance with section 28 of the Act, TCCS maintains an online record of access applications called a disclosure log, which is accessible at https://www.cityservices.act.gov.au/about-us/freedom_of_information/disclosure-log.

Your access application, this notice of decision and records released to you will be published on the disclosure log within 3-10 business days, with your personal information removed.

Ombudsman review

My decision on your access application is a reviewable decision as identified in Schedule 3 of the Act. You have the right to seek an Ombudsman review my decision under section 73 of the Act within 20 working days from the day that my decision is made or a longer period if allowed by the Ombudsman.

If you wish to request a review of my decision, you may write to the Ombudsman at:

The ACT Ombudsman
GPO Box 442
CANBERRA ACT 2601
Via email: actfoi@ombudsman.gov.au

ACT Civil and Administrative Tribunal (ACAT) review

Under section 84 of the Act, if a decision is made under section 82(1) on an Ombudsman review, you may apply to the ACAT for review of the Ombudsman decision.

Further information may be obtained from ACAT at:

ACT Civil and Administrative Tribunal
Level 4, 1 Moore Street
GPO Box 370
CANBERRA CITY ACT 2601
Telephone: (02) 6207 1740
www.acat.act.gov.au

If you have any queries about the directorate's processing of your request, or would like further information, please contact the TCCS FOI team on (02) 620 72987 or email tccs.foi@act.gov.au.

Yours sincerely



Cherie Hughes
Information Officer




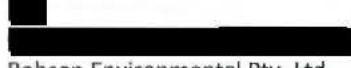


15 October 2020

Environmental Noise Assessment

Fraser West Terminus

November, 2019

Certificate of Approval for Issue of Documents

Document Name	Environmental Noise Assessment – Fraser West Terminus		
Date of Issue	28 November 2019	Job Number	636204
Client	Transport Canberra and City Services		
Site Sampling and Report Preparation			
  Robson Environmental Pty. Ltd.		  Robson Environmental Pty. Ltd.	
Reviewed and Approved			
  Robson Environmental Pty. Ltd.			
Copyright & Intellectual Property Statement			
<ol style="list-style-type: none"> 1. Robson owns (and will continue to own) all Intellectual Property Rights (including copyright) in this Report. 2. The person commissioning this Report (the Client) is entitled to retain possession of the Report upon payment of all sums owing to Robson in full or upon Robson agreeing to release the Report (In their absolute discretion and upon terms they think fit). 3. The Client must only use the Report for the purpose for which it was commissioned. 4. The Client may photocopy or reproduce all or any part of the Report provided that reproduction is to fulfil the purpose for which the Report was commissioned. 5. The Client must not otherwise publish the Report (or any advice given by Robson) to the public or any third parties without Robson's prior written consent. Robson will not unreasonably withhold consent but may take into account the reasons for which the Report (or advice) was commissioned and the consequences of the disclosure or potential reliance that will be placed on the Report by third parties. 6. The Client agrees that no party (other than the Client) can rely upon the Report or any advice given by Robson. 7. The Client indemnifies Robson against any costs, losses or damage suffered or incurred (including legal costs on a solicitor and own client basis) arising out of or as a consequence of the Client's breach of these provisions. 8. This report is solely for the use of the client and may not contain sufficient information for purposes of other parties, or for other uses. Any reliance on this report by third parties shall be at such party's own risk. 9. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Robson Environmental Pty Ltd. 			

1 Introduction

Robson Environmental Pty. Ltd. (Robson) undertook an environmental noise assessment to assess the level and type of noise produced by the scheduled layover of buses at Fraser West Terminus, located adjacent to Shakespeare Crescent, Fraser, on behalf of Transport Canberra and City Services.

The date and time of sampling periods are as follows:

- November 14, 2019 between the hours of 4:21 pm and 4:59 pm; and
- November 14, 2019 between the hours of 8:40 pm and 10:50 pm.

This assessment was prompted complaints about noise from residents of Shakespeare Crescent.

1.1 Objectives

The purpose of this assessment was to:

- determine if the level of noise produced by the layover of buses at Fraser West Terminus exceeds the noise exposure standard for relevant noise zones; and
- quantify any objectionable environment noise impacts on nearby properties.

1.2 Scope

The assessment consisted of the collection of static noise measurements during representative periods following the method of the Australian Capital Territory (ACT) Environmental Protection Authority (EPA) *Noise Measurement Manual* (2009) to assess noise produced by idling buses. Noise measurements were assessed against the relevant exposure standard given in the ACT *Environmental Protection Regulation* (2005) Table 2.2 for noise zone G (RZ1 Suburban Zone).

2 Methods

Noise monitoring of idling buses was undertaken during day and night periods to ensure compliance with the ACT *Environmental Protection Regulations* (2005).

2.1 Meteorological Conditions

Meteorological conditions were assessed prior to each assessment to ensure noise measurements would not be impacted by weather, as per the EPA *Noise Measurement Manual*. Meteorological conditions may also enhance the propagation of noise and the distance it carries.

Wind speed and temperature were measured using a hand held Kestrel 4000 anemometer (certificate of conformity attached at Appendix 1, S/N: 626717), using both the anemometer and temperature settings respectively. The anemometer was turned on in the testing locations, and left for a period of at least 10 minutes to equalise before temperature readings were taken.

Cloud coverage was also assessed based on Table 3: Definitions of oktas within the ACT EPA *Noise Measurement Manual* (2009).

2.2 Noise Measurement

Noise measurements were taken using a calibrated Quest Soundpro SE/DL Sound Level Meter (number BLH110006, calibration report attached at Appendix 2) at the compliance point,

approximately 5 m from buses, and a comparison location, just outside the boundary of a nearby residence. All measurements were taken at least 3 m away from noise reflective surfaces.

Pre and post assessment calibration checks were undertaken using a Quest QC-20 Calibrator (serial number QOI020037, calibration certificate attached at Appendix 3) at 1 kHz and 114dB. Measurements were taken following the method of the ACT EPA *Noise Measurement Manual* (2009).

2.2.1 Measurement Position and Compliance Point

The Sound Level Meter (SLM) microphone was mounted onto a tripod during each assessment at a height of greater than 1.2 metres from the ground, with the microphone positioned in the direction of Fraser West Terminus.

Noise measurements were recorded at the compliance point as defined in the *Environment Protection Regulation* (2005). As the buses are idling on unleased land, the compliance point is five metres from the noise source. The compliance point location (Figure 1) was initially selected to be approximately five metres from an idling bus, and the same location as used throughout the assessment. However, due to the mobile noise source, this meant that there were some periods in which the nearest bus was closer to or greater than five metres away from the compliance point.

An additional location (Figure 1) was assessed at the request of the client, just outside the lease boundary of residence adjacent to Fraser West Terminus.



Figure 1: Assessment locations on November 14, 2019

2.2.2 Noise Adjustment Factors

Noise sources may have varying characteristics which are deemed to be more or less annoying than other types of noise produced at the same level. Noise measurements were taken with the SLM to account for low frequency noise, impulsive noise, intermittent noise and tonal noise. SLM settings used for assessment are given in Table 1 and Table 2.

Table 1: Sound Level Meter Settings (Low Frequency, Intermittent and Tonal Noise)

Setting	Meter 1	Meter 2
Exchange Rate	3dB	3dB
Response Time	Fast	Fast
Weighting	A	C
Bandwidth	1/3 Octave	-

Table 2: Sound Level Meter Settings (Impulsive Noise)

Setting	Meter 1	Meter 2
Exchange Rate	3dB	3dB
Response Time	Fast	Impulse
Weighting	A	A
Bandwidth	1/3 Octave	-

3 Noise Adjustment Factors

Noise adjustment factors take into account the greater annoyance that can be caused by certain characteristics of noise. The noise adjustment factors, given in the ACT EPA *Noise Measurement Manual* (2009), are applied to measured sound levels to account for characteristics such as tonality, impulsiveness, intermittency, irregularity or dominant low-frequency content. Noise adjustment factors and their applications are detailed in Table 3.

Table 3: Noise adjustment criteria and corrections (from the *Noise Measurement Manual*, 2009)

Factor	Assessment Criteria	Application	Correction
Tonal Noise	1/3 octave band analysis	Band level exceeds adjacent bands on both sides by: 5dB or more if the centre frequency of the band containing the tone is above 400Hz. 8dB or more if the centre frequency of the band containing the tone is 160 to 400Hz inclusive. 15dB or more if the centre frequency of the band containing the tone is below 160Hz.	5dB
Low-frequency Noise	C-weighted and A-weighted L_{eq} noise	Correction to be applied if the difference between the two levels is 15dB or more.	5dB
Impulsive Noise	A-weighted fast response and impulse response	If a difference in A-weighted maximum noise levels is greater than 2dB.	Apply difference in measured levels as the correction, up

Factor	Assessment Criteria	Application	Correction
			to a maximum of 5dB
Intermittent Noise	Subjectively assessed	Level varies by more than 5dB.	5dB
Duration	Single-event noise duration may range from 1.5min to 2.5hr	One event in any 24-hour period.	0 to – 20dB

4 Compliance Noise Standard

Noise results were assessed against the environmental noise standards from the *ACT Environmental Protection Regulation, 2005- Schedule 2*, in compliance with the *Environmental Protection Act 1997* (Table 4). Fraser West Terminus is located within an RZ1 Residential Zone (Noise Zone G). For Noise Zone G, the applicable noise standards are shown in Table 4.

Table 4: Index for noise compliance in the ACT for Noise Zone G (RZ1 Suburban Zone)

Period	L _{A10} (Level of exceedance for 10% of time)
Monday-Saturday 7am-10pm	45dB(A)
Sunday and public holidays 8am-10pm	
Monday-Saturday 10pm-7am	35dB(A)
Sunday and public holidays 10pm-8am	

5 Results and Discussion

Sampling during the day time period was undertaken twice for the Compliance Point and adjacent residence on November 14, 2019, and sampling during the night time period was undertaken once on November 14, 2019.

5.1 Meteorological Conditions

The period between 4:21 pm and 4:49 pm on November 14, 2019 experienced no rain, had wind speeds of 0 to 4.5 m/s, a temperature of approximately 21°C, and little cloud cover. The period between 9:40 pm and 10:50 pm on November 14, 2019 experienced no rain, had no wind, a temperature of approximately 15°C, and little cloud cover. Conditions at both times were suitable for sampling.

5.2 Noise Characterisation

Fraser West Terminus is located opposite Shakespeare Crescent, Fraser. During the assessment period, Shakespeare Crescent appeared to be a relatively quiet road, with a car going past approximately every four minutes during both the day time and night time period. The road is in frequent use by Transport Canberra and City Services, with only a few minutes cumulatively throughout the assessment period with no buses in Fraser West Terminus.

During the day time and night time sampling, the dominant noise source at the Compliance Point was subjectively assessed to be the noise produced by idling buses. The dominant noise at the residence was also subjectively assessed to be the noise produced by idling buses.

5.3 Noise Measurements

5.3.1 Observations

Throughout the monitoring period, only two of the approximately 30 buses turned off their engine during their layover at Fraser West Terminus. Several buses were noted to keep their engine on for over five minutes, which is over the period of time specified in the Drivers' Guide posted at Fraser West Terminus (Figure 2) after which they should turn off their bus. One bus was observed to be idling for approximately twenty minutes.

A resident reported to the Robson consultant that this is not unusual, and they have noticed buses frequently keeping their engines on for over five minutes. The resident also reported their biggest concern is the buses idling during night time periods, with their front bedroom being affected by the noise.



Figure 2: Drivers' Guide posted at Fraser West Terminus

5.3.2 Noise Measurements

The ACT *Noise Measurement Manual* (2009) specifies in Section 4.2.2:

The noise alleged to cause environmental harm must be the dominant noise source at the time of the measurement and must be the noise that produces the sound pressure levels measured by the SLM.

While there were other sources of noise during the assessment, namely the cars driving past Fraser West Terminus, the dominant noise source was generally that of the buses idling.

The sound level measurements taken on November 14, 2019, given in Table 5, were all recorded for periods of between 5 and 15 minutes, as required by the ACT *Noise Measurement Manual* (2009). Samples taken before 10:00 pm were taken during the day period (noise standard 45 dB(A)), and samples taken after 10:00 pm were taken during the night period (noise standard 35 dB(A)).

Table 5: Sound level measurements on November 14, 2019

Time	Location	Noise Level L _{AeqT} dB(A)	Noise Level L _{A10} dB(A)	Noise Level L _{A90} dB(A)
4:21 – 4:35 pm	Compliance Point	67.3	69.2	45.3
4:48 – 4:59 pm	Adjacent Residence	66.1	63.1	53.6
9:40 – 9:47 pm	Compliance Point	68.7	69.0	68.3
9:53 – 10:00 pm	Adjacent Residence	59.5	58.4	44.4
10:02 – 10:15 pm	Compliance Point	55.6	58.4	29.9
10:33 – 10:38 pm	Adjacent Residence	49.4	50.0	47.9
10:38 – 10:50 pm	Adjacent Residence	52.7	49.5	48.0

Applicable noise correction factors are given in Table 6, for each sample. Sampling results showed no impulse noise during the assessment. Only one sample met the criteria to apply a noise correction (the first sample at the compliance point). The remaining samples did not have noise corrections applied. Measured L_{A10} noise (incorporating traffic noise and background noise) exceed the exposure standard at all times of assessment. This result is unsurprising, given the applicable noise standard is quite low.

Table 6: Applied noise corrections for each noise monitoring period

Location	Applied adjustment factor (dB)				Corrected Noise Level L _{A10} dB(A)	Noise Standard
	Low Frequency	Impulsive Noise	Intermittent Noise	Tonal Noise		
Compliance Point – Day	None	N/A	None	Yes	74.2	45
Residence – Day	None	N/A	None	None	63.1	45
Compliance Point – Day	None	N/A	None	None	69.0	45
Residence – Day	None	N/A	None	None	58.4	45

Location	Applied adjustment factor (dB)				Corrected Noise Level L _{A10} dB(A)	Noise Standard
	Low Frequency	Impulsive Noise	Intermittent Noise	Tonal Noise		
Compliance Point – Night	None	N/A	None	None	58.4	35
Residence – Night	None	N/A	None	None	50.0	35
Residence – Night	None	N/A	None	None	49.5	35

6 Discussion

The results clearly indicate that the idling buses at Fraser West Terminus exceed the residential noise standard during both day and night time periods at the Compliance Point, approximately five metres away from the source of the noise. The noise standard is also exceeded at an adjacent residence. The buses are the dominant source of noise in the area, with other occasional traffic also a source of noise.

While the noise standard is quite low, there was a period of four minutes (10:11 – 10:14 pm inclusive), with noise measured below 35 dB(A) (Table 7). This was measured at the Compliance Point, with a single bus parked with the engine off at Fraser West Terminus. This short period does not meet the noise sample criteria given in the ACT EPA *Noise Measurement Manual* (2009), but does show that the noise standard can be met during night time at Fraser West Terminus if all buses turn their engines off during layovers. As the day time noise standard is higher, if bus engines are off during layovers, this can also be met.

Table 7: Sound level measurements on November 14, 2019 at the Compliance Point

Time	Noise Level: L _{AeqT} dB(A)	Noise Level: L _{A10} dB(A)
10:11 pm	29.9	32
10:12 pm	31.4	33.2
10:13 pm	31.1	32.4
10:14 pm	31.2	32.8

A notice at Fraser West Terminus tells drivers to turn off their engine if layover is greater than five minutes. Despite this, the vast majority of buses parked at Fraser West Terminus kept their engines on, regardless of the length of their layover. It was observed that some buses were subjectively louder than others, likely due to the age of the bus. Additionally, it was noted that the more buses idling at Fraser West Terminus, the greater the subjective noise level. The reduction in noise was especially noticeable when a bus turned off their engine while another bus kept their engine on.

Given that bus idling is causing complaints and exceeding the noise standard, and it is possible to significantly reduce the noise and meet the noise standard if drivers following the procedure of turning off their engine, investigation of why this procedure is not being followed is recommended.

Additionally, as this procedural noise management strategy is an administrative control, and relies on each driver following the procedure, other higher levels of control should also be investigated to manage noise levels. Examples of higher level controls include ensuring regular maintenance is

performed on buses to ensure they are as quiet as possible, or if the budget allows, replacing older buses with quieter buses. However, it is likely that any non-electric idling bus will be over the noise standard.

7 Conclusions and Recommendations

The environment noise assessment conducted on November 14, 2019 at Fraser West Terminus showed that the noise standard was exceeded at the Compliance Point and a nearby residence in both the day and night periods due to the noise of buses idling in Fraser West Terminus.

Noise levels measured over a short time period showed that noise at the Compliance Point meets the applicable noise standard during the night time period if the engine of the bus is off, demonstrating that noise produced by idling buses is significantly louder than the background noise for this area. However, the majority of buses observed over the assessment did not turn off their engine during their layover.

7.1 Recommendations

1. Enforce the Drivers' Guide at Fraser West Terminus requiring drivers to turn off their engine if layover is greater than five minutes. Investigate the reason why this is not currently being followed.
2. Ensure regular maintenance is performed on buses, especially with the view to reduce the noise generated by older buses.
3. Transport Canberra and City Services could investigate other locations for buses to park during layovers, however this would likely also result in complaints from other nearby residents. Ideally a location away from residential properties would be the best option.
4. Consider installation of a noise barrier between Fraser West Terminus and the residential properties across the street. Large bushes or trees can also be a good noise barrier.

8 Limitations

While Robson has taken all care to ensure that this report includes the most accurate information available, samples were taken at certain times on the day or days indicated within the report and Robson is unable to comment on conditions at other times. Any statement of expected conditions at other times should be taken as possible conditions only.

The report, including any risk assessment presented, is based on the information obtained by Robson at the time of sampling. Any variation in the environment, activities, methods, practices, products, or equipment used may change exposures to hazards, invalidating the presented risk assessment. Robson recommends that risks be re-assessed prior to making any changes to the aforementioned factors.

The findings contained within this report are developed from the interpretation of the results of specific sampling methods used in accordance with generally accepted practices and standards, based on the current state of knowledge. To the best of Robson's knowledge, our assessment of the data represents a reasonable interpretation of the general conditions, and subsequent risk at the time of sampling. Should you have any questions or require further information please contact Robson Environmental.

9 References

- *Environment Protection (Noise Measurement Manual) Approval (No 1), 2009 (ACT)*. Made under the Environment Protection Regulation 2005, s29A (Noise measurement manual)
- Environmental Protection Regulation- Schedule 2, 2005 (ACT)

Appendix 1 Kestrel 4000 Anemometer Conformity Certificate

Kestrel® 4000 Pocket Weather® Tracker Certificate of Conformity

This certifies that the enclosed Kestrel 4000 Pocket Weather® Tracker was manufactured by

Nielsen-Kellerman Co.

at its facilities located at

21 Creek Circle, Boothwyn, PA 19061 USA

This instrument was produced under rigorous factory production control and documented standard procedures. It was individually inspected and tested for display, backlight, button and software functionality and its measurement performance was individually calibrated and tested against standards traceable to the National Institute of Standards and Technology ("NIST") or calibrated intermediary standards. This unit is certified to have performed at the time of manufacture in compliance with the specifications printed on the reverse.

Methods Used in Calibration and Testing

Wind Speed /Air Velocity:

The Kestrel impeller installed in this unit was individually tested in a subsonic wind tunnel operating at approximately 1200 fpm (6.1 m/s) monitored by a Gill Instruments Model 1350 ultrasonic time-of-flight anemometer. The low-speed functionality of this impeller was further verified following wind tunnel testing. The Gill 1350 is calibrated at low and high speeds by NIST with a maximum relative expanded uncertainty of $\pm 0.60\%$ within the airspeed range 591 to 7874 fpm (3.0 to 40.0 m/s) and further verified on a regular schedule by NK's internal measurement assurance program.

Temperature:

The temperature response of this unit was verified in comparison with a Eutechnics 4600 Precision Thermometer or a standard Kestrel 4000 Pocket Weather Tracker calibrated weekly with the Eutechnics 4600. The Eutechnics 4600 is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of $\pm 0.020^\circ\text{C}$.

Relative Humidity:

This unit received a two-point RH calibration in humidity and temperature controlled chambers at 75.3% RH and 32.8% RH at 25°C. The calibration chambers were monitored with an Edgetech Model 2002 DewPrime II Standard Chilled Mirror Hygrometer. Following calibration, the performance of this instrument was further verified at an RH of approximately 43.2% against the Edgetech Hygrometer. The Edgetech Hygrometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of $\pm 0.5\% \text{RH}$.

Barometric Pressure:

The pressure response of this unit was verified at multiple pressures (~1000 hPa, 900 hPa and 500 hPa) against a Mensor Series 6000 Digital Barometer or a standard Kestrel 4000 Pocket Weather Tracker calibrated weekly with the Mensor Barometer. The Mensor Barometer is calibrated annually and is traceable to NIST with a maximum relative expanded uncertainty of $\pm 0.2 \text{ hPa}$.

Inspected By: _____

Appendix 2 Quest Soundpro SE/DL Sound Level Meter Calibration Report



Instrulabs Pty. Ltd.

SOUND LEVEL METER CALIBRATION CERTIFICATE

THIS IS TO CERTIFY THAT THE SOUND LEVEL METER

MAKE : Quest OWNED BY : Robson Environmental
 MODEL : Sound Pro SE/DL Address: Unit 1, 140 Gladstone Street
 SERIAL : BLH110006 Fyshwick ACT 2609

HAS BEEN CALIBRATED ON : 24-Jan-19

SUMMARY
 Acoustic stimuli for the calibration tests were generated by a Bruel & Kjaer 4226; electrical stimuli for the calibration tests were generated by a TTI TGA1241 Arbitrary Waveform Generator and verified by a Precision Voltmeter. Reference equipment has current NATA endorsed calibration documentation shown below.

CALIBRATION INSTRUMENTS USED

Bruel & Kjaer Acoustic Calibrator Type 4226	s/n 2892340	Recalibration due 27-Mar-19
Fluke8846A Precision Multimeter	s/n 2479018	Recalibration due 09-Jul-19

CERTIFIED RESULTS

Pass AS1259.1 cl 10.2.2 - Absolute acoustic sensitivity	Pass AS1259.1 cl 10.4.3 - Impulse time weighting
Pass AS1259.1 cl 10.2.3 - Acoustic frequency weighting	Pass AS1259.1 cl 10.4.4 - Peak time weighting
Pass AS1259.1 cl 8.9, 8.10 - Indicator Linearity	Pass AS1259.1 cl 10.4.5 - RMS Performance, rectangular
Pass AS1259.1 cl 10.2.3 - Electrical frequency weighting	Pass AS1259.1 cl 10.4.5 - RMS Performance, tone burst
Pass AS1259.1 cl 10.3.2 - Overload indication test	Pass AS1259.2 cl 9.3.2 - Time averaging
Pass AS1259.1 cl 10.3.3 - Level range	Pass AS1259.2 cl 9.3.3 - Indicator Linearity
Pass AS1259.1 cl 10.3.4 - Self-generated noise	Pass AS/NZS 4478 cl 4.4 - Relative attenuation, 1/1 Oct
Pass AS1259.1 cl 10.4.2 - Time weighting Fast and Slow	Pass AS/NZS 4478 cl 4.4 - Relative attenuation, 1/3 Oct

Signature _____ Signature _____
 Calibrated by _____

The tests, calibrations, or measurements covered by this document are traceable to Australian National Standards of Measurement. A "NT" result means the device was not tested for compliance with this clause, and a "Und" result means the measurement result lies within the range of our Uncertainty of Measurement. This certificate is issued without alteration or erasure. It may not be copied or reproduced except in full without the express written permission of the issuing laboratory.



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Instrulabs Pty. Ltd.

SOUND LEVEL METER CALIBRATION REPORT

Calibration Date: Thursday, 24 January 2019 Calibration Result: **Pass**

Device and Calibration Information

Client: Robson Environmental, Unit 1, 140 Gladstone Street, Fyshwick ACT 2609

Contact: [Redacted] 02 6239 5656

Meter: Quest Sound Pro SE/DL, S/N: BLH110006
Firmware Revision: R.13D

Microphone S/N: 2650287

Laboratory Reference Equipment Used:

Bruel & Kjaer Acoustic Calibrator Type 4226, S/N: 2692340, Cal Due: 27/03/2019
Fluke8846A Precision Multimeter, S/N: 2479018, Cal Due: 9/07/2019

Test Environment:

Start Conditions
23.3°C, 1013.6 hPa, 62.1 %RH



Absolute Acoustic Sensitivity Check - AS1259.1:1990 clause 10.2.2

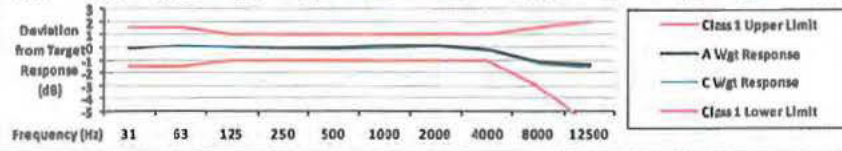
Uncertainty = ±0.09dB C.F.= 1.07 C.L.= 95%

Initial Indication 94.0 dB Final Indication 114.0 dB Tolerance ± 1.0 dB Result **Pass**

Frequency Weighting Acoustic Check - AS1259.1:1990 clause 10.2.3

Reference SPL Level(dB)= 114.0 Uncertainty C.F.= 1.07 C.L.= 95%
Acoustic Coupler Sound Field Correction = Traditional Free Field

Freq. (Hz)	A Weighted Indication	A Weighted Target	A Weighted Deviation	A Weighted Limits	Result	C Weighted Indication	C Weighted Target	C Weighted Deviation	C Weighted Limits	Result	Uncertainty
31.5	74.6	74.6	-0.1	-1.5/1.5	Pass	113.0	113	0.0	-1.5/1.5	Pass	0.14
63	87.8	87.75	0.05	-1.5/1.5	Pass	113.1	113.15	-0.05	-1.5/1.5	Pass	0.14
125	97.8	97.84	-0.04	-1/1	Pass	113.7	113.74	-0.04	-1/1	Pass	0.13
250	105.2	105.33	-0.13	-1/1	Pass	113.8	113.93	-0.13	-1/1	Pass	0.13
500	110.6	110.73	-0.13	-1/1	Pass	113.7	113.93	-0.23	-1/1	Pass	0.13
1000	114.0	113.9	0.1	-1/1	Pass	113.8	113.9	-0.1	-1/1	Pass	0.09
2000	115.2	115.1	0.1	-1/1	Pass	113.7	113.7	0.0	-1/1	Pass	0.13
4000	114.7	114.92	-0.22	-1/1	Pass	112.8	113.12	-0.32	-1/1	Pass	0.14
8000	111.8	111.95	-1.15	-3/1.5	Pass	109.8	111.05	-1.25	-3/1.5	Pass	0.14
12500	108.3	109.64	-1.34	-6/2	Pass	106.2	107.74	-1.54	-6/2	Pass	0.19



Signature [Redacted] Signature [Redacted]
Calibrated by [Redacted] Checked by [Redacted]



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Indicator Linearity - AS1259.1-1990 - clause 8.9 & 8.10

Reference SPL (dB) **114.0** Uncertainty = ±0.12dB C.F.= 1.97 C.L.= 95%

Stimulus level (mVAC) **396.4**

	SPL (dB)	Observed	Absolute	Tolerance	Differential	Tolerance	Result
31.5 Hz Tests	140	140.0	0.0	± 0.7 dB			Pass
	130	130.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	120	120.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	110	110.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	100	100.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	99	99.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	98	98.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	97	97.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	96	96.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	95	95.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	94	94.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	93	93.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	92	92.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	91	91.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	90	90.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
80	80.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
70	70.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
60	60.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
50	50.2	0.2	± 0.7 dB	-0.2	± 0.4 dB	Pass	
1000 Hz Tests	140	140.0	0.0	± 0.7 dB			Pass
	130	130.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	120	120.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	110	110.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	100	100.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	99	99.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	98	98.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	97	97.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	96	96.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	95	95.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	94	94.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	93	93.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	92	92.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	91	91.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	90	90.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
80	80.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
70	70.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
60	60.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
50	50.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
8000 Hz Tests	140	140.0	0.0	± 0.7 dB			Pass
	130	130.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	120	120.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	110	110.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	100	100.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	99	99.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	98	98.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	97	97.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	96	96.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	95	95.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	94	94.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	93	93.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	92	92.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	91	91.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	90	90.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
80	80.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
70	70.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
60	60.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
50	50.1	0.0	± 0.7 dB	-0.1	± 0.4 dB	Pass	



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Overload Indication Test - AS 1259.1-1990 clause 10.3.2
 Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%

Over-Load Indications - AS 1259.2-1990 clause 9.3.5

Yes Overload indicator remained latched until reset No

Stimulus level (mVAC) 6692.7
Reference SPL (dB) 136.0

Freq (Hz)	Atten.	SPL	Overload	Tolerance	Result	Freq (Hz)	Atten.	SPL	Overload	Tolerance	Result
1000	0 dB	135	<input type="checkbox"/>		REFERENCE						
800	-0.8 dB	135.1	<input type="checkbox"/>	± 1 dB	Pass						
630	-1.9 dB	135.1	<input type="checkbox"/>	± 1 dB	Pass						
500	-3.2 dB	135.1	<input type="checkbox"/>	± 1 dB	Pass						
400	-4.8 dB	135.2	<input checked="" type="checkbox"/>	± 1 dB							

Impulse Time Weighting - AS 1259.1-1990 clause 10.4.3
 Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%

Reference SPL (dB) 120.0
Stimulus level (mVAC) 1357.7
Reference frequency (Hz) 2000.0

Ref SPL	20ms	5ms	2ms	Result	Ref SPL	5ms	5ms 20Hz	5ms	Result
continuous	single	single	single		continuous	100Hz		2Hz	
120 dB	116.6	111.4	107.6	Pass	120 dB	117.2	112.3	111.1	Pass
110 dB	116.6	101.4	97.6	Pass	110 dB	107.2	102.3	101.1	Pass
100 dB	96.6	91.4	87.6	Pass	100 dB	97.2	92.3	91.1	Pass
90 dB	86.6	81.4	77.6	Pass	90 dB	87.2	82.3	81.2	Pass
80 dB	76.6	71.4	67.6	Pass	80 dB	77.2	72.3	71.2	Pass
70 dB	67.1	61.9	58.1	Pass	70 dB	67.7	62.8	61.7	Pass
Target	Ref - 3.6dB	Ref - 8.8dB	Ref - 12.6dB		Target	Ref -2.7dB	Ref - 7.6dB	Ref - 8.8dB	
Tolerance	1.5	2.0	2.0		Tolerance	1.0	2.0	2.0	

Peak Time Weighting - AS 1259.1-1990 clause 10.4.4
 Stimulus level (mVAC) 1372.05
 Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%

Waveform	Observed	Required	Result
10ms pulse reference	138	138	REF
Onset time positive	30	< 100 µs	Pass
Onset time negative	30	< 100 µs	Pass



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Indicator Linearity - AS1259.2-1990 - clause 9.3.3							
Reference SPL (dB) 140.0		Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%					
Stimulus level (mVAC) 6528.9		Reference frequency (Hz) 4000.0					
	SPL (dB)	Observed	Absolute	Tolerance	Differential	Tolerance	Result
10dB steps	140	140.0	0.0	± 0.7 dB			Pass
	130	130.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	120	120.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	110	110.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	100	100.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	90	90.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
1dB steps	80	80.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	100	100.0	0.0	± 0.7 dB			Pass
	99	99.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	98	98.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	97	97.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	96	96.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	95	95.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	94	94.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	93	93.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
	92	92.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass
91	91.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	
90	90.0	0.0	± 0.7 dB	0.0	± 0.4 dB	Pass	

Time Averaging - AS 1259.2-1990 clause 9.3.2						
Reference SPL (dB) 75 dB		Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%				
Stimulus level (mVAC) 6.90		Reference frequency (Hz) 4000.0				
Applied SPL	Burst	Leq	Expected	Limits	Result	
Ref	Continuous	75.0	75 dB		REF	
+ 10 dB	1 sec	75.0	75 dB	± 0.5 dB	Pass	
+ 20 dB	100 ms	75.0	75 dB	± 0.5 dB	Pass	
+ 30 dB	10 ms	75.2	75 dB	± 1 dB	Pass	
+ 40 dB	1 ms	75.5	75 dB	± 1 dB	Pass	

R.M.S. Performance, Rectangular Pulses and Tone Bursts - AS 1259.1-1990 clause 10.4.5						
		Uncertainty = ±0.1dB C.F.= 1.97 C.L.= 95%				
Rectangular Pulses			Tone Bursts			
C.F.3:	Ref SPL (dB)	Stimulus level (mVAC)	Tolerance (dB)	Ref SPL (dB)	Stimulus level (mVAC)	Tolerance (dB)
	125 dB	2071.691	0.5	125 dB	2072.671	0.5
C.F.5:	120 dB	1156.807	1	120 dB	1158.249	1
C.F.10:	115 dB	76.22548	1.5	115 dB	671.538	1.5

Crest Factor 3				Crest Factor 5				Crest Factor 10				Result	
Atten.	+ Pulse	Q/L	- Pulse	Q/L	+ Pulse	Q/L	- Pulse	Q/L	+ Pulse	Q/L	- Pulse		Q/L
0	125.0	<input type="checkbox"/>	125.0	<input type="checkbox"/>	120.0	<input type="checkbox"/>	120.0	<input type="checkbox"/>	115.0	<input type="checkbox"/>	115.0	<input type="checkbox"/>	REF
10	115.0	<input type="checkbox"/>	114.9	<input type="checkbox"/>	109.9	<input type="checkbox"/>	109.9	<input type="checkbox"/>	105.0	<input type="checkbox"/>	105.0	<input type="checkbox"/>	Pass
20	105.0	<input type="checkbox"/>	105.0	<input type="checkbox"/>	99.9	<input type="checkbox"/>	99.9	<input type="checkbox"/>	95.0	<input type="checkbox"/>	95.0	<input type="checkbox"/>	Pass
30	94.9	<input type="checkbox"/>	94.9	<input type="checkbox"/>	89.9	<input type="checkbox"/>	89.9	<input type="checkbox"/>	84.9	<input type="checkbox"/>	85.0	<input type="checkbox"/>	Pass
40	84.9	<input type="checkbox"/>	85.0	<input type="checkbox"/>	79.8	<input type="checkbox"/>	80.0	<input type="checkbox"/>	74.9	<input type="checkbox"/>	75.1	<input type="checkbox"/>	Pass
50	74.9	<input type="checkbox"/>	74.9	<input type="checkbox"/>	70.0	<input type="checkbox"/>	69.9	<input type="checkbox"/>	65.0	<input type="checkbox"/>	65.0	<input type="checkbox"/>	Pass

Atten.	Indication	Overload	Indication	Overload	Indication	Overload	Result
0	125.0	<input type="checkbox"/>	120.0	<input type="checkbox"/>	115.0	<input type="checkbox"/>	REF
10	115.0	<input type="checkbox"/>	110.0	<input type="checkbox"/>	104.9	<input type="checkbox"/>	Pass
20	105.0	<input type="checkbox"/>	100.0	<input type="checkbox"/>	95.0	<input type="checkbox"/>	Pass
30	94.9	<input type="checkbox"/>	89.9	<input type="checkbox"/>	84.9	<input type="checkbox"/>	Pass
40	85.0	<input type="checkbox"/>	79.9	<input type="checkbox"/>	74.9	<input type="checkbox"/>	Pass
50	74.9	<input type="checkbox"/>	69.9	<input type="checkbox"/>	64.9	<input type="checkbox"/>	Pass



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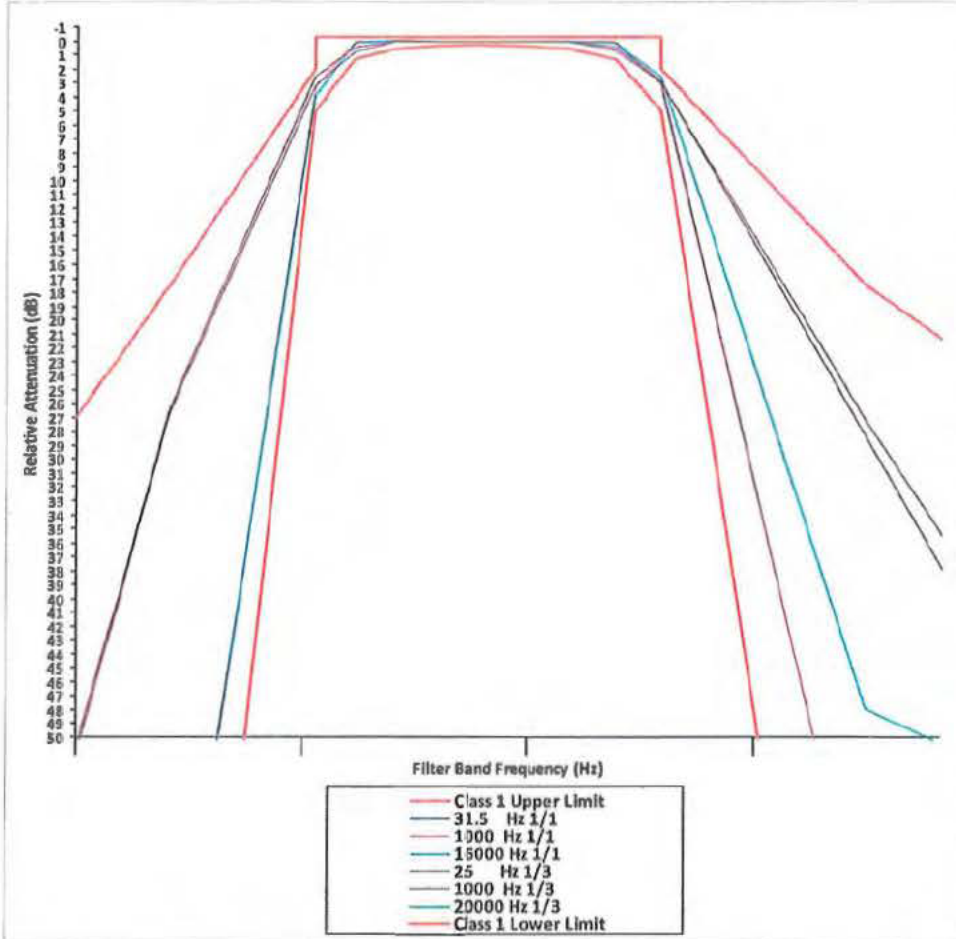
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Relative Attenuation 1/1 & 1/3 Octave Band Filters - AS/NZS 4478:1997 clause 4.4

Uncertainty = ± 0.7 dB C.F. = 1.97 C.L. = 95%

Reference SPL Level (dB) = 120
 Stimulus Level (mV) = 786.4
 Filter Design Base = 2
 Filter Class = 1

Analyzer Firmware = R.13D
 Firmware changed since last calibration? = No
 Calibration Range (Full/Limited) = Limited



Signature _____
 Calibrated by _____

Signature _____
 Checked by _____



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Appendix 3 Acoustic Calibrator Calibration Certificate



Instrulabs Pty. Ltd.

ACOUSTIC CALIBRATOR CALIBRATION CERTIFICATE

THIS IS TO CERTIFY THAT THE ACOUSTIC CALIBRATOR

MAKE : Quest OWNED BY Robson Environmental
 MODEL : QC-20 ADDRESS : Unit 1, 140 Gladstone Street
 SERIAL : QO/020037 Fyshwick ACT 2609
 ASSET # :
 HAS BEEN CALIBRATED ON : 24-Jan-19

CALIBRATION INSTRUMENTS USED		
Rion NA-28 Sound Level Meter	s/n 01270891	Recalibration due 17-Jan-20
Bruel & Kjaer Acoustic Calibrator Type 4226	s/n 2592340	Recalibration due 27-Mar-19
NI USB-6221-BNC Multifunction DAQ	s/n 14E9DD2	Recalibration due 12-Mar-19

CERTIFIED QUANTITIES					
SPL Setting at 94 dB			SPL Setting at 114 dB		
Frequency - AS IEC 60942-2004 clause B3.5					
Limits ± 1%, Uncertainty ± 0.05%, C.F. = 2, C.L. = 95%					
250 Hz:	250.1	Hz	Pass	250 Hz:	250.1
1000 Hz:	996.1	Hz	Pass	1000 Hz:	996.1
THD+N - AS IEC 60942-2004 clause B3.6					
Limits ± 3%, Uncertainty ± 0.8%, C.F. = 2, C.L. = 95%					
250 Hz :	0.5	%	Pass	250 Hz :	0.5
1000 Hz :	0.3	%	Pass	1000 Hz :	0.4
SPL - AS IEC 60942 clause B3.4.3.2					
Limits ± 0.4dB, Uncertainty ± 0.2dB, C.F. = 2, C.L. = 95%					
94dB @ 250 Hz :	93.91	dB	Pass	114dB @ 250 Hz :	113.85
94dB @ 1000 Hz :	94.12	dB	Pass	114dB @ 1000 Hz :	114.08

Signature

Calibrated

Signature

Checked by

The tests, calibrations, or measurements covered by this document are traceable to Australian National Standards of Measurement. A "fail" result means the device was not tested for compliance with the clause, and a "use" result means the measurement result lies within the range of our Uncertainty of Measurement. This certificate is issued without alteration or omission. It must not be copied or reproduced except in full without the express written permission of the issuing laboratory.



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