



REPORT 160095R1

Revision 0

Patrick Port Botany Terminal
Biannual Environmental
Noise Compliance Monitoring
May 2019

PREPARED FOR:
Patrick Port Botany Terminal
PO Box 197
Botany NSW 1455

29 May 2019



Patrick Port Botany Terminal Biannual Environmental Noise Compliance Monitoring May 2019

PREPARED BY:

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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
160095R1	Revision 0	29 May 2019	Thomas Carney	Desmond Raymond	Rodney Stevens



Appendix G – Unattended Logger Results – Military Road

Military Road, Matraville

Patrick Port Botany

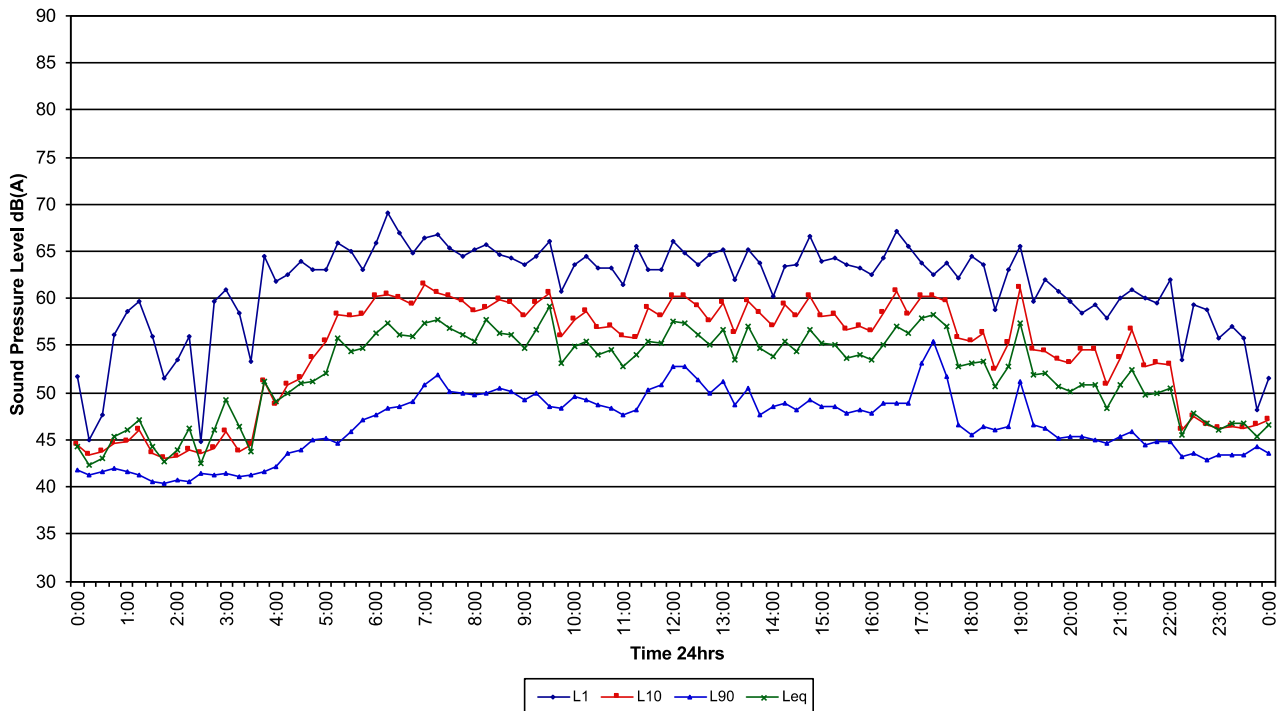
Thursday 2/5/19



Military Road, Matraville

Patrick Port Botany

Friday 3/5/19

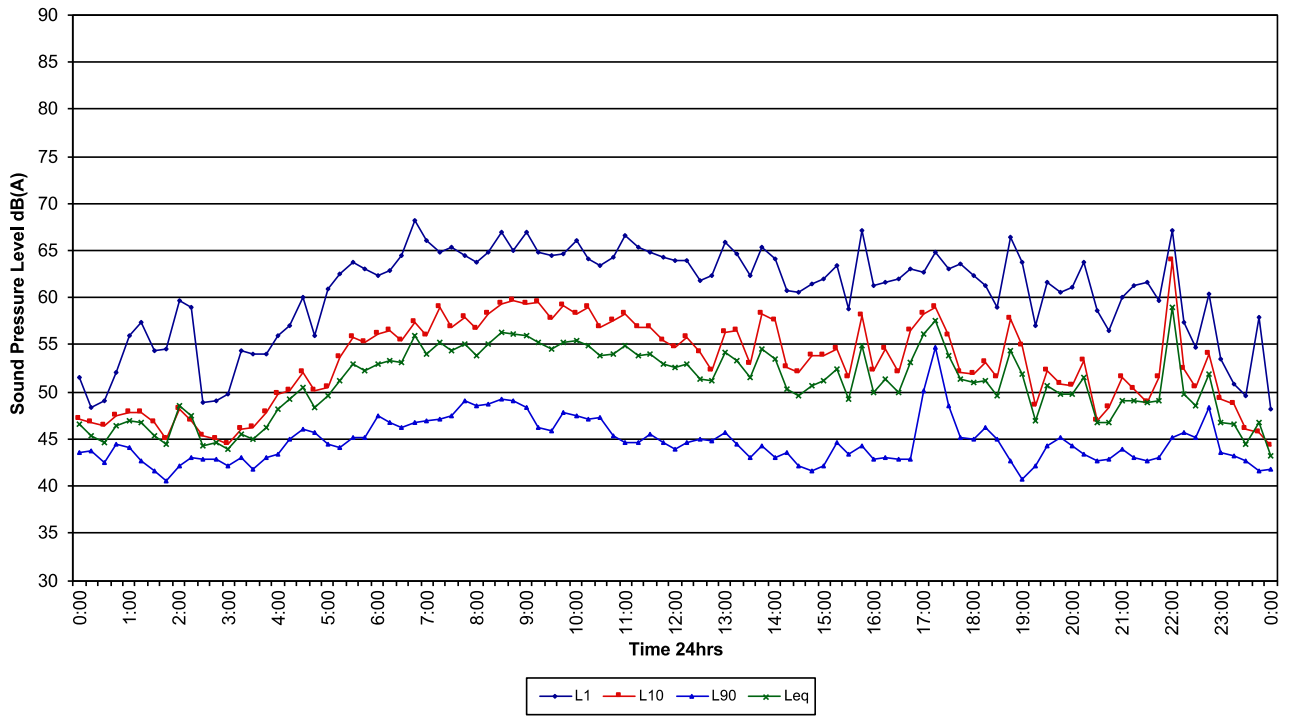




Military Road, Matraville

Patrick Port Botany

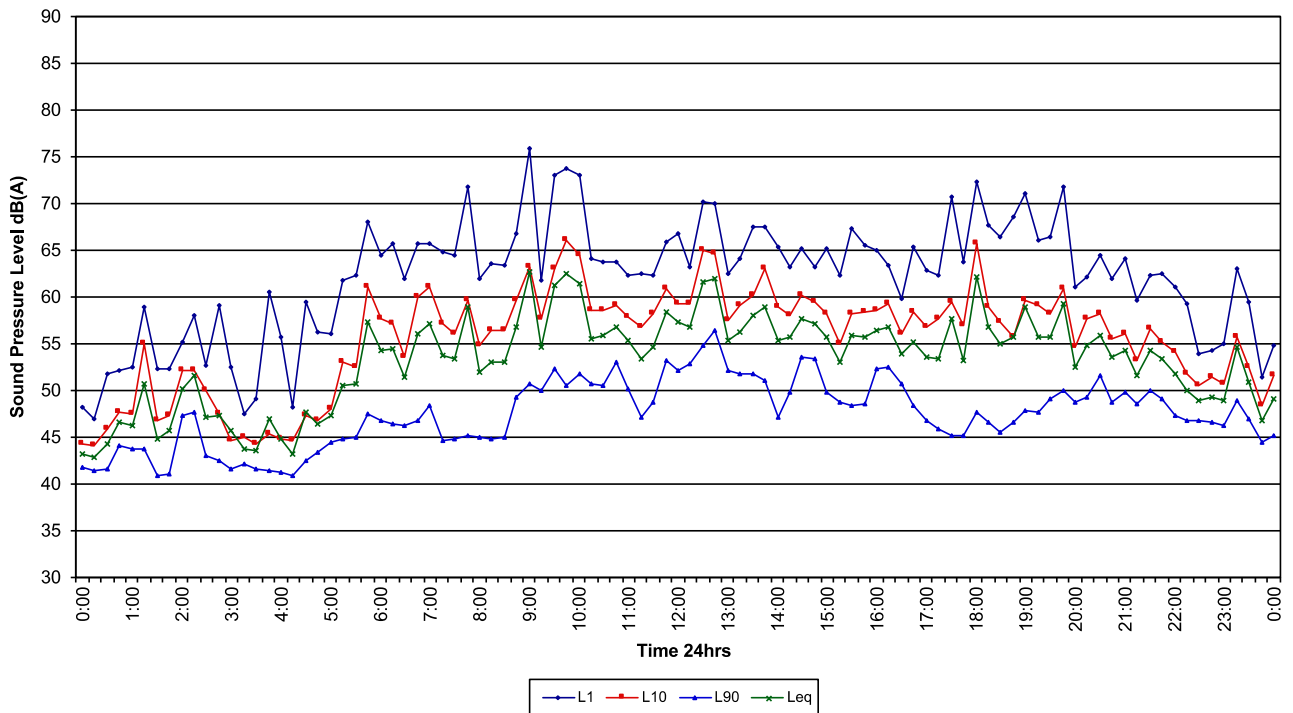
Saturday 4/5/19



Military Road, Matraville

Patrick Port Botany

Sunday 5/5/19

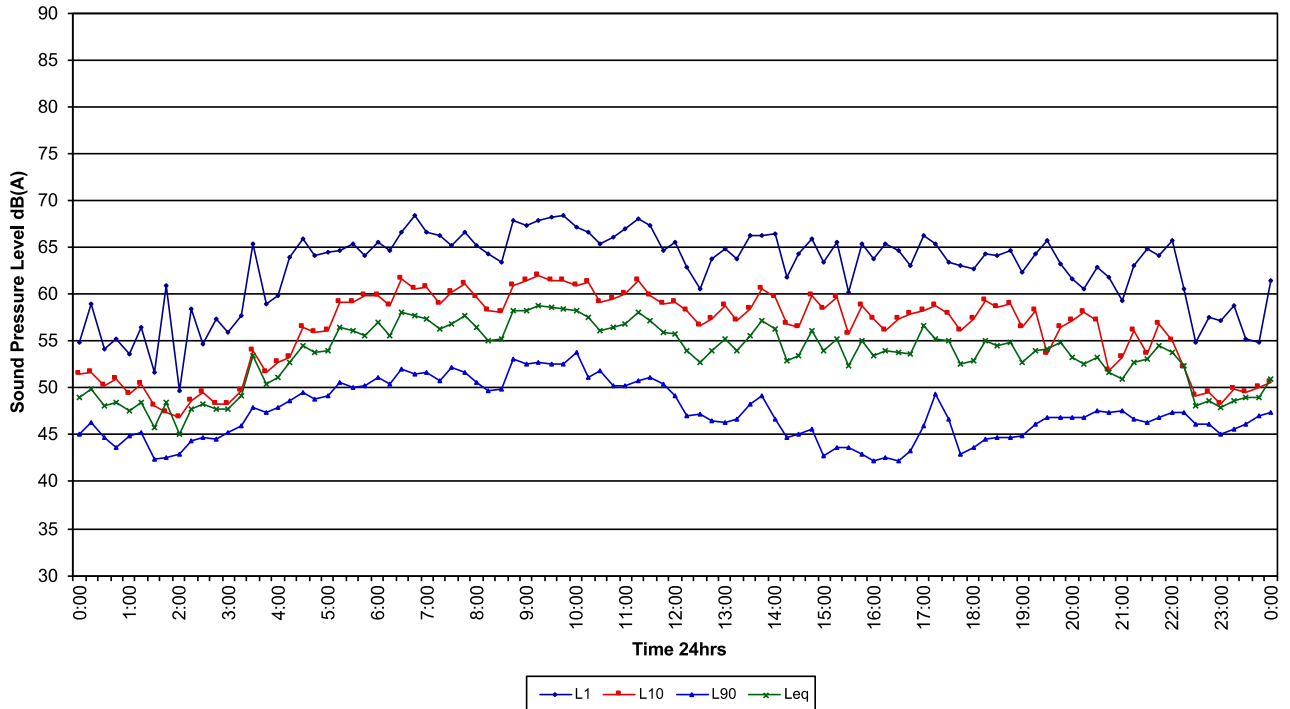




Military Road, Matraville

Patrick Port Botany

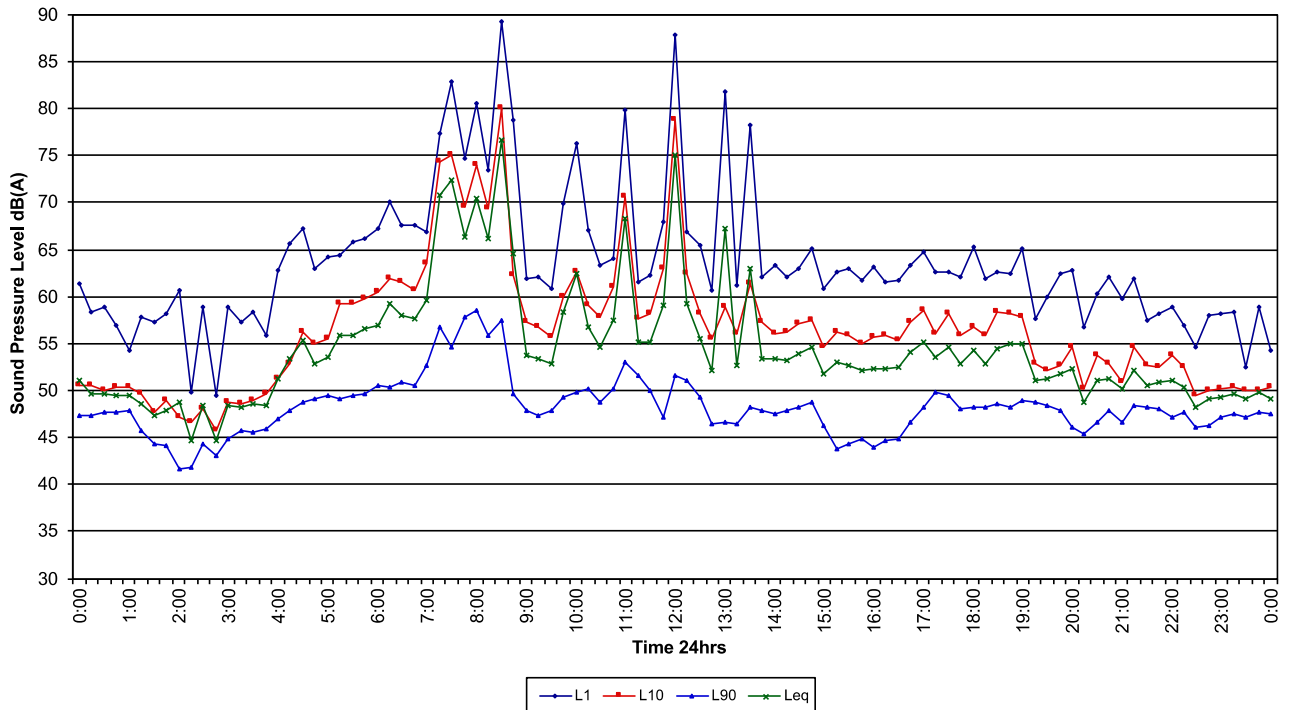
Monday 6/5/19



Military Road, Matraville

Patrick Port Botany

Tuesday 7/5/19

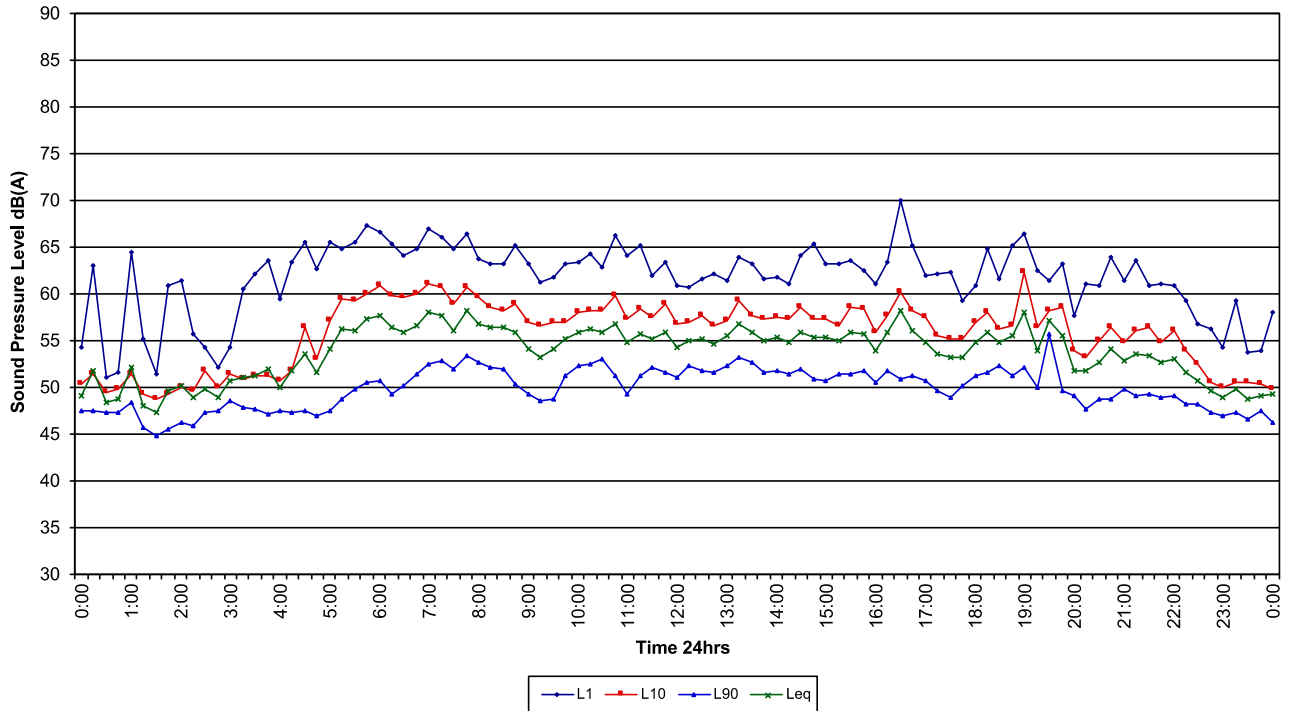




Military Road, Matraville

Patrick Port Botany

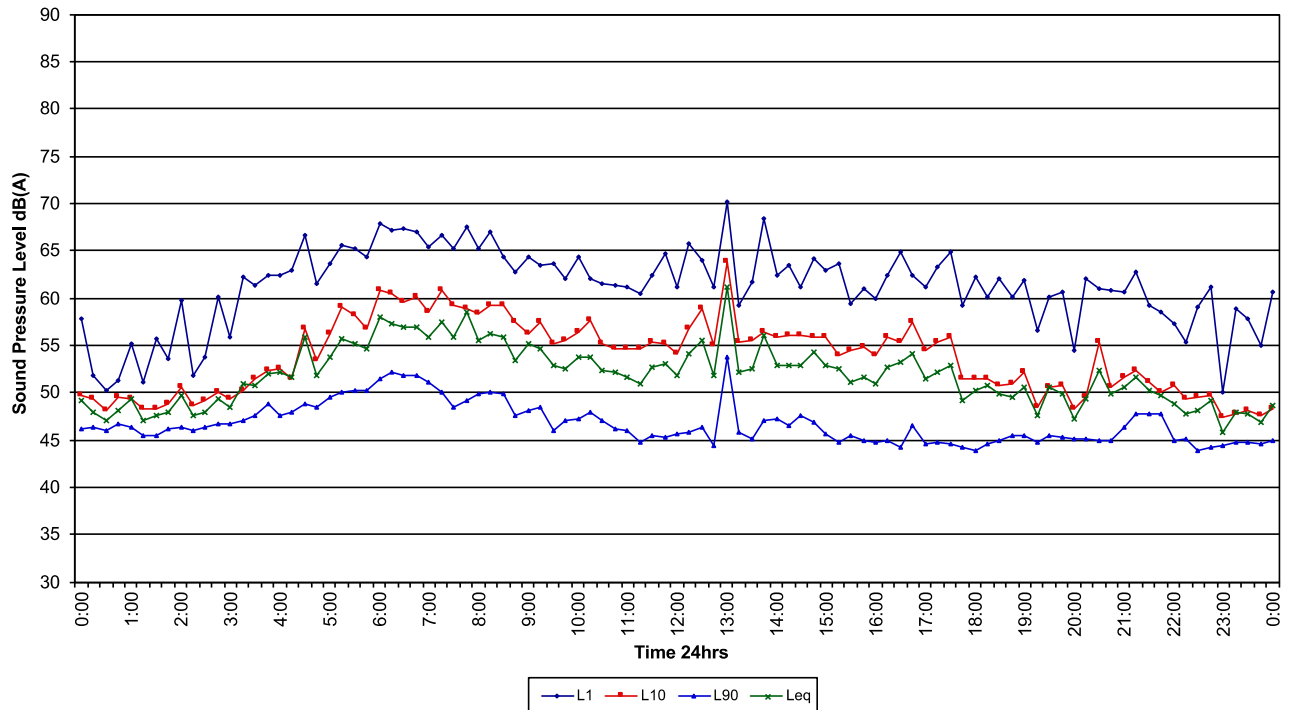
Wednesday 8/5/19



Military Road, Matraville

Patrick Port Botany

Thursday 9/5/19

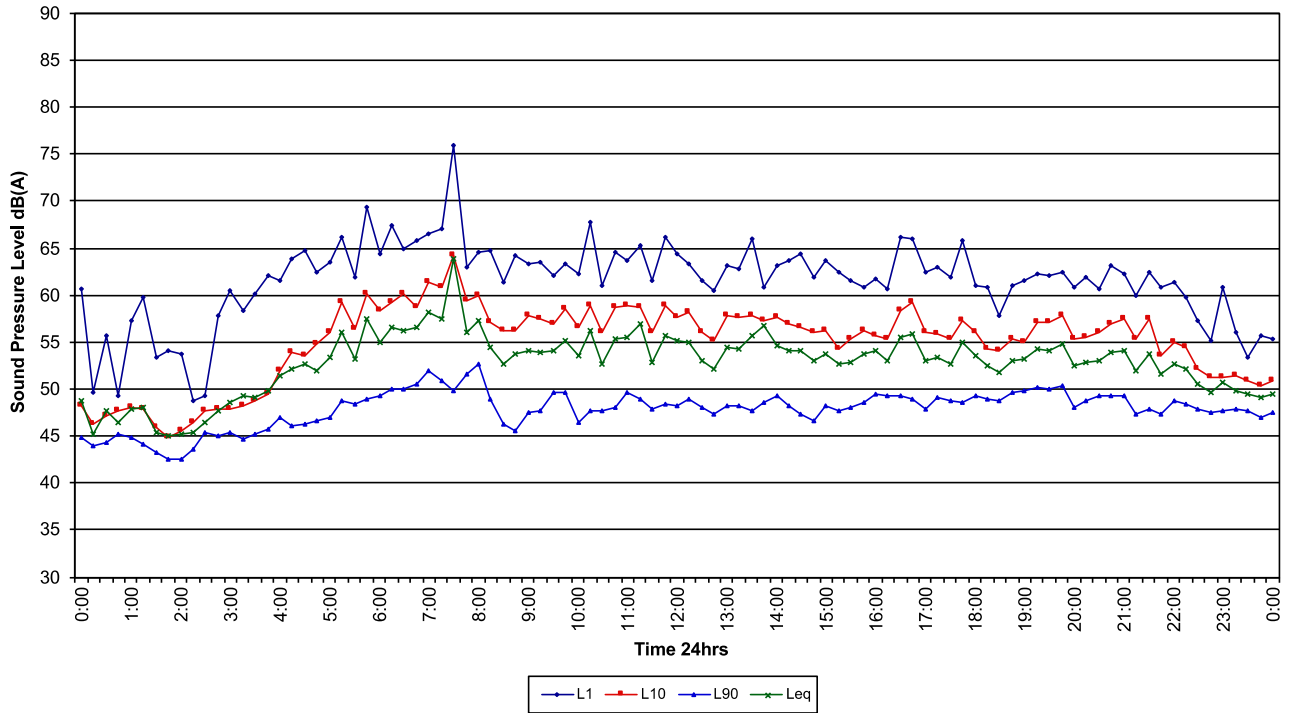




Military Road, Matraville

Patrick Port Botany

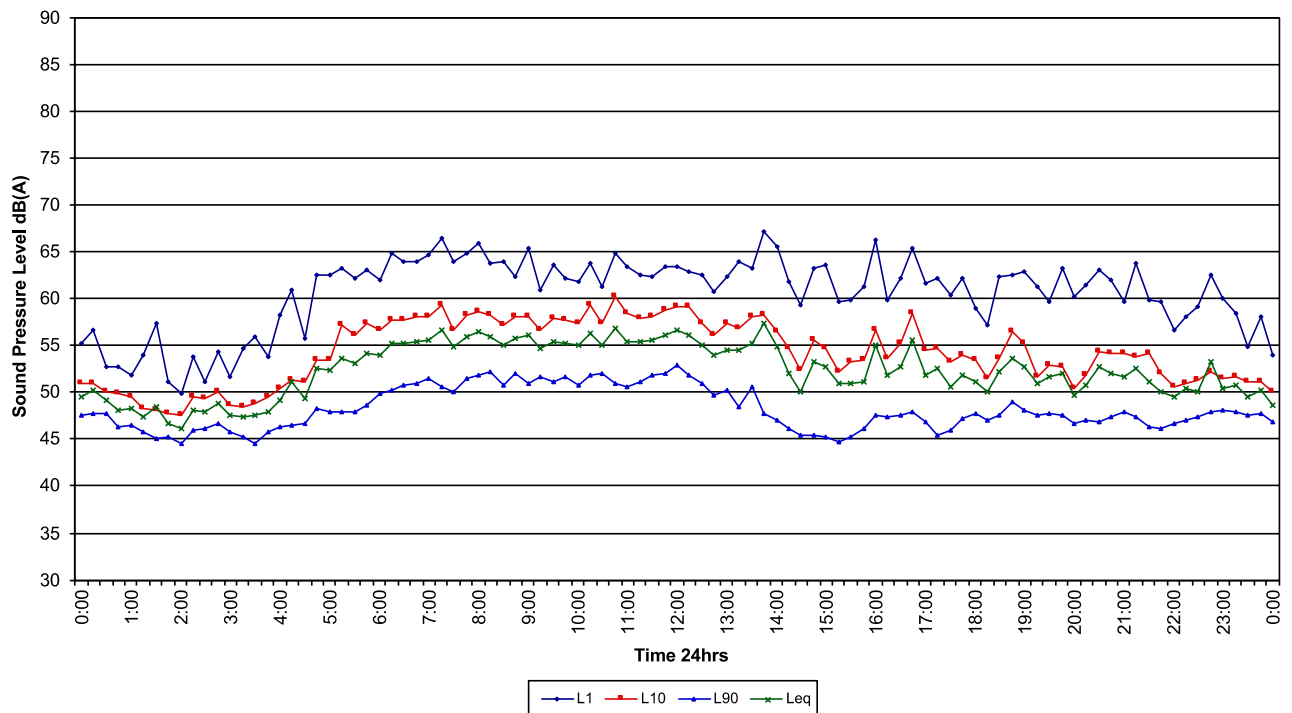
Friday 10/5/19



Military Road, Matraville

Patrick Port Botany

Saturday 11/5/19

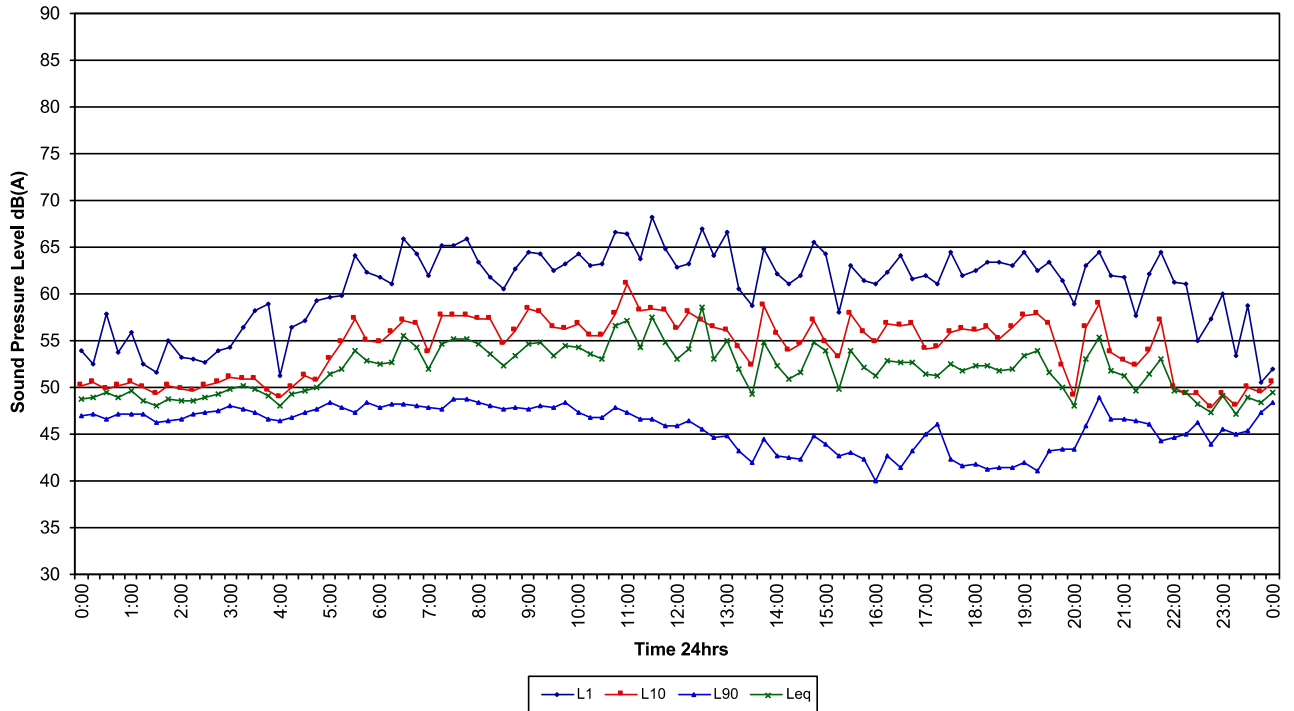




Military Road, Matraville

Patrick Port Botany

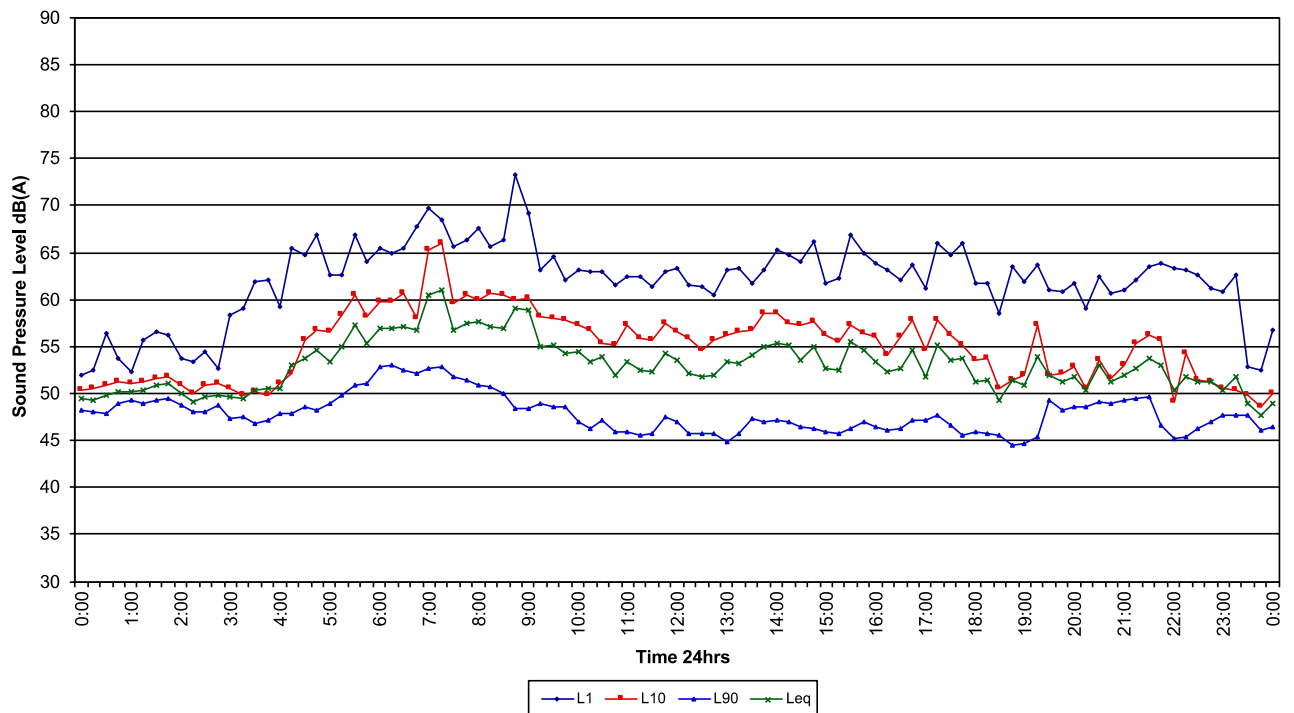
Sunday 12/5/19



Military Road, Matraville

Patrick Port Botany

Monday 13/5/19

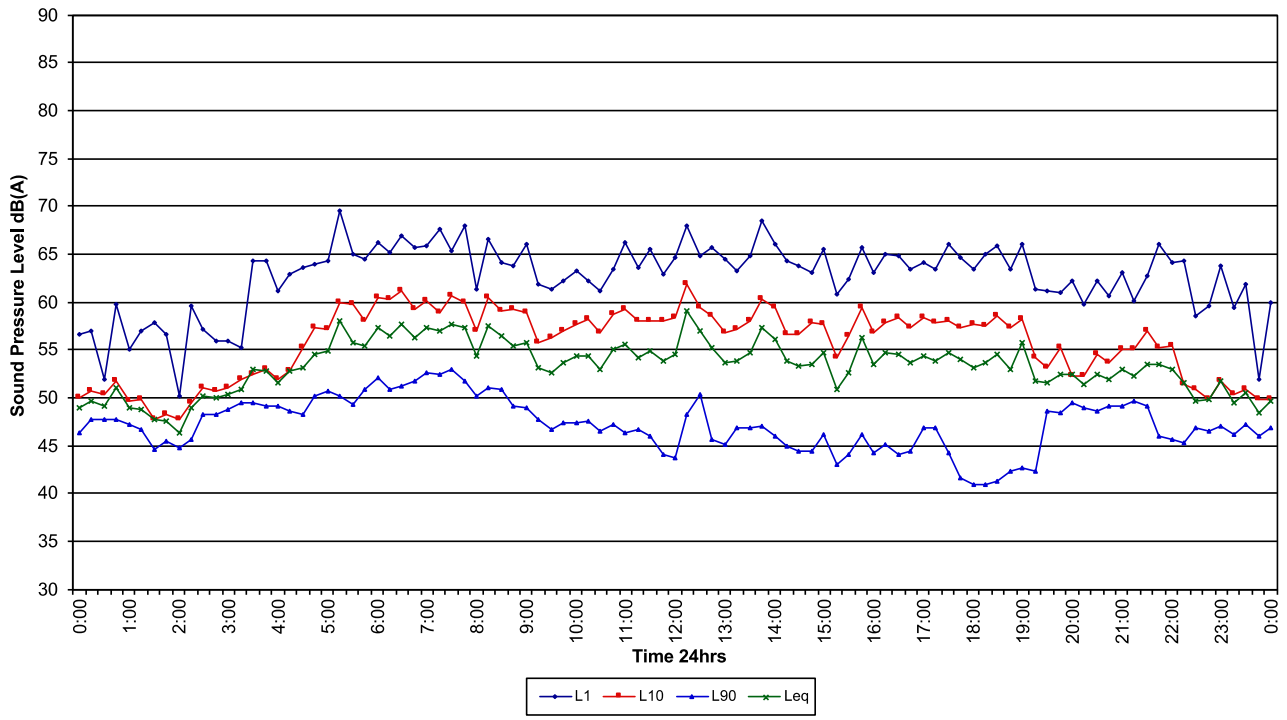




Military Road, Matraville

Patrick Port Botany

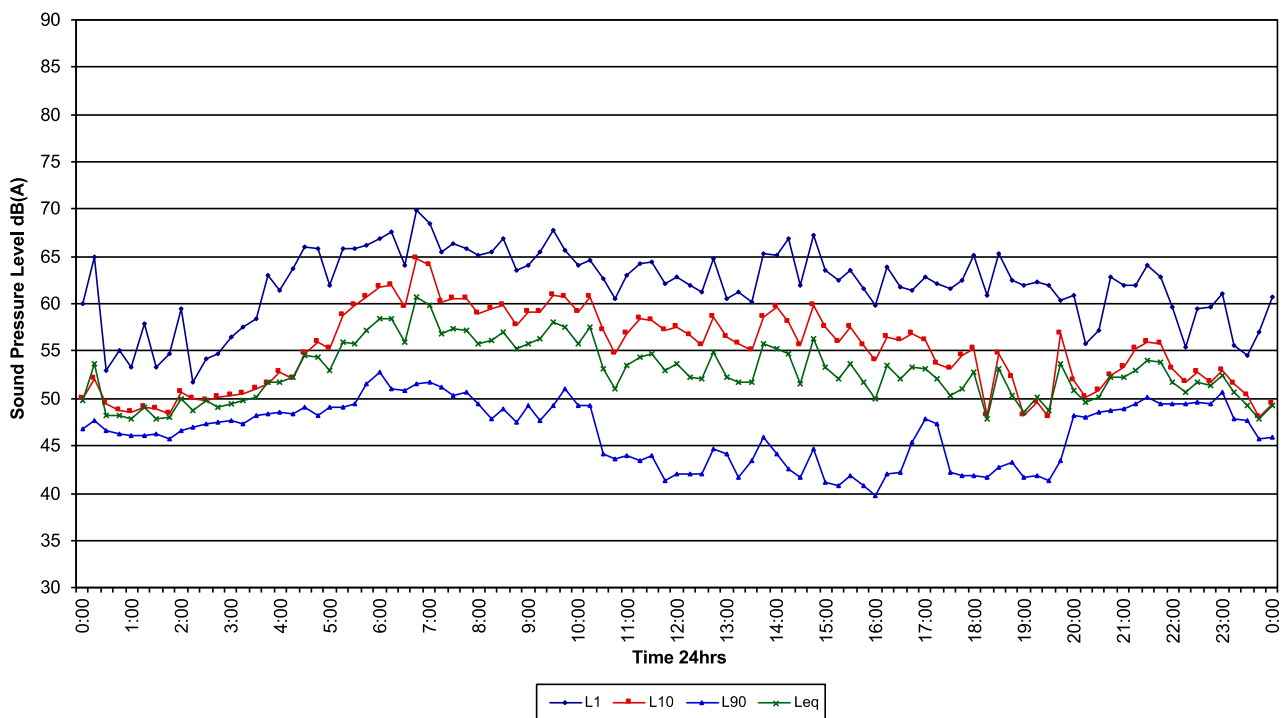
Tuesday 14/5/19



Military Road, Matraville

Patrick Port Botany

Wednesday 15/5/19

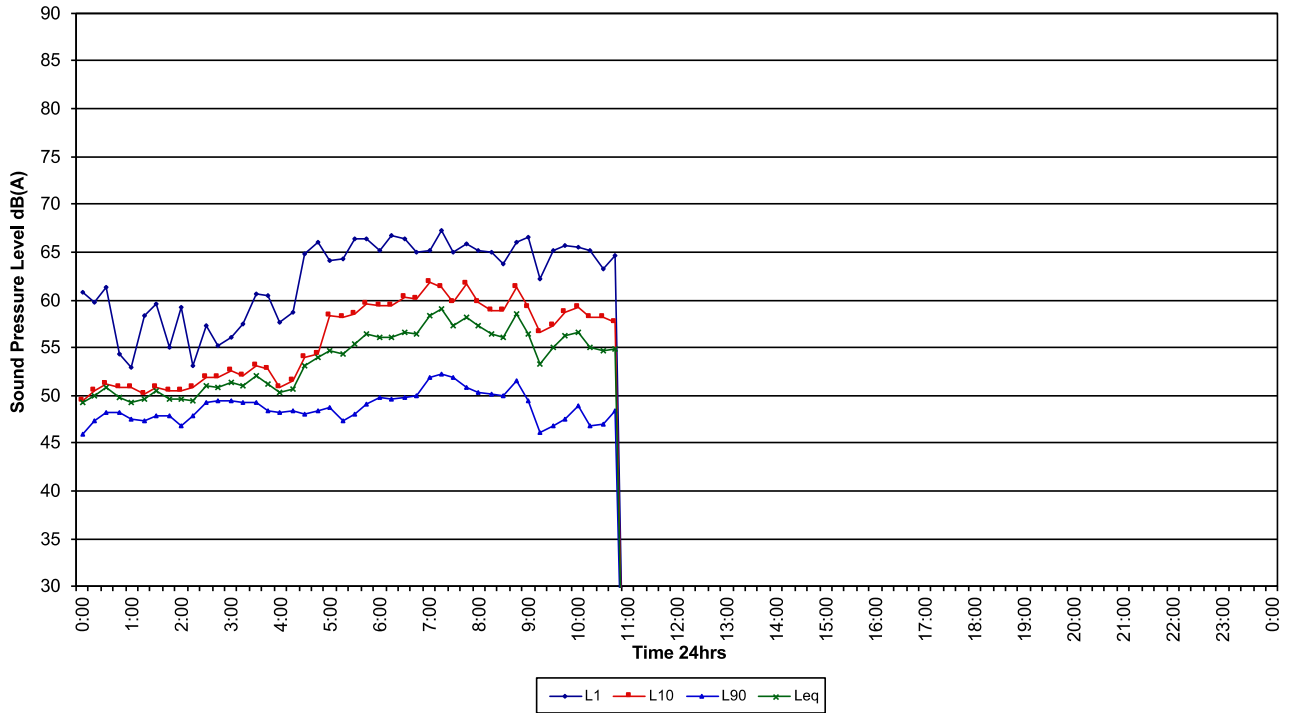




Military Road, Matraville

Patrick Port Botany

Thursday 16/5/19





Appendix H – Calibration Certificates



**Acoustic
Research
Labs Pty Ltd**

Level 7 Building 2 423 Pennant Hills Rd
Pennant Hills NSW AUSTRALIA 2120
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 C17345

Client Details Rodney Stevens Acoustics Pty Ltd
1 Majura Close
St Ives Chase NSW 2075

Equipment Tested/ Model Number : Rion NL-42EX
Instrument Serial Number : 00133010
Microphone Serial Number : 144601
Pre-amplifier Serial Number : 23060

Pre-Test Atmospheric Conditions
Ambient Temperature : 22.6°C
Relative Humidity : 35%
Barometric Pressure : 99.09kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.5°C
Relative Humidity : 34.4%
Barometric Pressure : 98.98kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 07/07/2017

Secondary Check: Riley Cooper
Report Issue Date : 07/07/2017

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 2 periodic tests of IEC 61672-3:2006, 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 61672-1:2002 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 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	±0.16dB	Temperature	±0.05°C
12.5kHz	±0.2dB	Relative Humidity	±0.46%
16kHz	±0.29dB	Barometric Pressure	±0.017kPa
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

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.

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Sound Level Meter
 IEC 61672-3:2013
Calibration Certificate

Calibration Number C17335

Client Details Rodney Stevens Acoustics Pty Ltd
 1 Majura Close
 ST IVES NSW 2075

Equipment Tested/ Model Number : Rion NL-42EX
Instrument Serial Number : 00133013
Microphone Serial Number : 162572
Pre-amplifier Serial Number : 46604

Pre-Test Atmospheric Conditions
Ambient Temperature : 23°C
Relative Humidity : 38.8%
Barometric Pressure : 98.93kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 23°C
Relative Humidity : 37.7%
Barometric Pressure : 98.94kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 04/07/2017

Secondary Check: Sandra Minto
Report Issue Date : 05/07/2017

Approved Signatory :

Juan Aguero

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 2 periodic tests of IEC 61672-3:2006, 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 61672-1:2002 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 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement - Environmental Conditions			
Acoustic Tests		Temperature	±0.05°C
31.5 Hz to 8kHz	±0.16dB	Relative Humidity	±0.46%
12.5kHz	±0.2dB	Barometric Pressure	±0.017kPa
16kHz	±0.29dB		
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

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

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Octave Band Filter AS 4476:1997 Calibration Certificate

Calibration Number C16718A_Reissued

Client Details Rodney Stevens Acoustics Pty Ltd
 1 Majura Close
 St Ives Chase NSW 2075

Filter Model Number : Rion NL-42EX
Filter Serial Number : N/A
Instrument Serial Number : 00546395
Microphone Serial Number : 144589
Pre-amplifier Serial Number : 23057

Atmospheric Conditions
Ambient Temperature : 22.8°C
Relative Humidity : 50.2%
Barometric Pressure : 99kPa

Calibration Technician : Vicky Jaiswal **Secondary Check:** Riley Cooper
Calibration Date : 10/01/2017 **Report Issue Date :** 29/06/2018

Approved Signatory : Ken Williams

Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
4.4 & 5.3: 1/1 Octave relative attenuation	Pass	4.6 & 5.5: Linear operating range	Pass
4.4 & 5.3: 1/3 Octave relative attenuation	Pass	4.8 & 5.7: Anti-alias filters	Pass
		4.10 & 5.9: Flat frequency response	Pass

The fractional octave band meter under test has been shown to conform to the class 2 requirements for periodic testing as described in AS 4476:1997 for the tests stated above.

Least Uncertainties of Measurement -			
Electrical Tests		Environmental Conditions	
< 16Hz	±0.19dB	Temperature	±0.3°C
16Hz-1000Hz	±0.11dB	Relative Humidity	±2.5%
1000Hz-10000Hz	±0.1dB	Barometric Pressure	±0.017kPa
10000Hz-10kHz	±0.1dB		
> 10kHz	±0.16dB		

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.

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Sound Level Meter

IEC 61672-3:2013

Calibration Certificate

Calibration Number C17322

Client Details Rodney Stevens Acoustics Pty Ltd
1 Majura Close
St Ives Chase NSW 2075

Equipment Tested/ Model Number : Rion NL-42EX
Instrument Serial Number : 00572558
Microphone Serial Number : 170393
Pre-amplifier Serial Number : 72896

Pre-Test Atmospheric Conditions
Ambient Temperature : 22.2°C
Relative Humidity : 36.6%
Barometric Pressure : 99.76kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.8°C
Relative Humidity : 35.9%
Barometric Pressure : 99.65kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 03/07/2017

Secondary Check: Riley Cooper
Report Issue Date : 04/07/2017

Approved Signatory :

Juan Aguero

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 2 periodic tests of IEC 61672-3:2006, 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 61672-1:2002 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 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	±0.16dB	Temperature	±0.05°C
12.5kHz	±0.2dB	Relative Humidity	±0.46%
16kHz	±0.29dB	Barometric Pressure	±0.017kPa
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

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.



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Sound Level Meter
 IEC 61672-3:2013
Calibration Certificate

Calibration Number C17536

Client Details Rodney Stevens Acoustics Pty Ltd
 1 Majura Close
 St Ives Chase NSW 2075

Equipment Tested/ Model Number : Rion NL-42EX
Instrument Serial Number : 00710677
Microphone Serial Number : 147121
Pre-amplifier Serial Number : 33998

Pre-Test Atmospheric Conditions
Ambient Temperature : 22.9°C
Relative Humidity : 47.7%
Barometric Pressure : 99.47kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.2°C
Relative Humidity : 45.9%
Barometric Pressure : 99.42kPa

Calibration Technician : Jason Gomes
Calibration Date : 13/10/2017

Secondary Check: Riley Cooper
Report Issue Date : 17/10/2017

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 2 periodic tests of IEC 61672-3:2006, 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 61672-1:2002 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 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

Least Uncertainties of Measurement - Environmental Conditions			
Acoustic Tests		Temperature	±0.05°C
31.5 Hz to 8kHz	±0.16dB	Relative Humidity	±0.46%
12.5kHz	±0.2dB	Barometric Pressure	±0.017kPa
16kHz	±0.29dB		
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

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.

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Sound Level Meter
 IEC 61672-3.2013
Calibration Certificate

Calibration Number C17537

Client Details Rodney Stevens Acoustics Pty Ltd
 1 Majura Close
 St Ives Chase NSW 2075

Equipment Tested/ Model Number : Rion NL-42
Instrument Serial Number : 00810779
Microphone Serial Number : 148338
Pre-amplifier Serial Number : 22257

Pre-Test Atmospheric Conditions
Ambient Temperature : 22°C
Relative Humidity : 45.5%
Barometric Pressure : 94.4kPa

Post-Test Atmospheric Conditions
Ambient Temperature : 22.3°C
Relative Humidity : 47.1%
Barometric Pressure : 99.35kPa

Calibration Technician : Jason Gomes
Calibration Date : 13/10/2017

Secondary Check: Riley Cooper
Report Issue Date : 17/10/2017

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 2 periodic tests of IEC 61672-3.2006, 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 61672-1.2002 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 61672-1.2002 and because the periodic tests of IEC 61672-3.2006 cover only a limited subset of the specifications in IEC 61672-1.2002.

Least Uncertainties of Measurement -

Acoustic Tests		Environmental Conditions	
31.5 Hz to 8kHz	±0.16dB	Temperature	±0.05°C
12.5kHz	±0.2dB	Relative Humidity	±0.46%
16kHz	±0.29dB	Barometric Pressure	±0.017kPa
Electrical Tests			
31.5 Hz to 20 kHz	±0.12dB		

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.



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NATacoustic
 Acoustic Calibration & Testing Laboratory
 Level 1, 418A Elizabeth Street, Surry Hills NSW 2010 AUSTRALIA
 Ph: (02) 8218 0570 | email: service@nataacoustic.com.au | website: www.nataacoustic.com.au
 A division of Renzo Tonin & Associates (NSW) Pty Ltd ABN 29 117 462 861

Certificate of Calibration Sound Level Meter

Calibration Date	29/11/2017	Job No	RB588	Operator	AM
Client Name	RODNEY STEVENS ACOUSTICS PTY LTD				
Client Address	PO BOX 552, WAHROONGA, NSW 2076				

Test Item

Instrument Make	SVANTEK	Model	979	Serial No	#34075
Microphone Make	GRAS	Model	40AE	Serial No	#178253
Preamplifier Make	SVANTEK	Model	SV17	Serial No	#25290
Ext'n Cable Make	N/A	Model	N/A	Serial No	N/A
Accessories	N/A			Firmware	1.39.3

SLM Type	1
Filters Class	1

Environmental Conditions	Measured	
	Start	End
Air Temp. (°C)	24.1	22.8
Rel. Humidity (%)	53.5	50.4
Air Pressure (kPa)	101.3	100.5

Applicable Standards:
 Periodic tests were performed in accordance with procedures from IEC 61672-3:2013

Applicable Work Instruction:
 RWI-08 SLM & Calibrator Verification


Laboratory Equipment :
 B&K4226 Multifunction Acoustic Calibrator SN 2288472
 Agilent Function Generator Model 33220A SN MY43004013
 Agilent Digital Multimeter Model 34401A SN MY41004386

Traceability:
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Scope:
 This certificate is issued on the basis that the instrument complies with the manufacturer's specification. See "Sound Level Meter Verification - Summary of Tests" page for an itemised list of results for each test.


Uncertainty:
 The uncertainty is stated at a confidence level of 95% using a K factor of 2.

Calibration Statement:
 The sound level meter submitted for testing has successfully completed the 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 organization responsible for approving the results of pattern evaluation tests performed in accordance with AS IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in AS IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 specifications of AS IEC 61672-1:2013.



NATA
 NATA Accredited Laboratory Number
 14966
 WORLD RECOGNISED
 ACCREDITATION

Authorized Signatory:



Print Name: Renzo Tonin Date: 4 Dec 2017

