

Quarterly Environment Construction Monitoring Report

Q3 – July to September 2021

Pitt Street Integrated Station Development

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1. Introduction

1.1 **Project Summary**

The Sydney Metro City and Southwest is the second portion of the new standalone rail network known as the Sydney Metro, which is Australia's largest public transport infrastructure project and a priority rail project for the NSW Government. CPB Contractors (CPB) have been contracted by Transport for New South Wales to design and construct the Integrated Station Development (ISD) component of the future Pitt Street Station.

Pitt Street is situated within the Sydney CBD, largely surrounded by high-rise commercial and residential buildings. The Station is a binocular cavern station with north and southbound platform caverns running beneath Pitt and Castlereagh Streets respectively. The Station has two entrance shafts from the surface one at Pitt Street North and Pitt Street South connected to the platform caverns via adit tunnels.

Pitt Street North is located on Park Street between Pitt and Castlereagh Street, with the station entrance facing onto Park Street. The Over Station Development (OSD) surrounds the station entrance and access is provided on Pitt, Park and Castlereagh Streets. Pitt Street South is located on the corner of Pitt and Bathurst Street. It is configured in an 'L' shape which wraps around the Edinburgh Castle Hotel with the station entrance opening onto Bathurst Street. Access to the OSD is provided from Pitt Street.



Figure 1-1 Pitt Street Station location and indicative monitoring layout

1.2 Site Activities

The Construction Environment Management Plan (CEMP) and associated sub-plans were approved by Department of Planning, Industry and Environment (DPIE) on 24 December 2020 and construction works commenced on the project on 6 January 2021. This is the third quarterly report and reflects the monitoring that was conducted from July to September 2021. **Table 1-1** outlines the site activities that occurred during the reporting period.

Month	Site Activities
July 2021	Pitt Street North
	 Ongoing detailed excavation Ongoing footing construction Jump form system installation Site deliveries Wall 4 excavation on columns 1 to 4 complete and scaffolding removed Waterproofing 90% complete on perimeter walls Ongoing earthing works Ongoing hoarding rectification works
	Pitt Street South
	 Ongoing detailed excavation Ongoing footing construction Ongoing slab pours (west B03 slab poured) Started perimeter walls B02 to B01 Ongoing jump form system works Site deliveries Waterproofing works completed Ongoing hoarding rectification works
	Caverns
	 Minor works undertaken in tunnels for brackets and formwork Commencement of earthing works at Pitt Street South front of house adit
August 2021	Pitt Street North - Ongoing jump form pours - Form, retain pour works ongoing - Hoarding works - Linewide concrete pours from Pitt Street - Groundwater tank walls poured - Balance/install of structural steel ongoing - Site deliveries Ongoing hoarding rectification works
	Pitt Street South
	 Ongoing ground slab pours (B01 and B02 slab poured) Started perimeter walls B02 to B01 Ongoing waterproofing works Ongoing jump form pours Site deliveries Waterproofing works completed Stairs A built to B01 Pile drilling complete Eurotower variation works complete (connection from hanging piles to oviciting forting)
	- Destressed 75% of anchors
	- Removal of Trident system and commissioning of Axis dewatering system
	 Ongoing installation of tunnels brackets and formwork Last of precast blocks placed Ongoing platform slab pours Blockwork commencing

Month	Site Activities
September 2021	Pitt Street North - Formwork up to B03 - Ongoing jump form pours - Site deliveries - Hoarding rectification works complete, graphics to be installed - Suspended deck was poured (3rd pour of 6 for B04) - Hoarding modified to accommodate new hoist - Jump form modification and dismantle west core (night works) - East corner stretcher stair has been installed
	 Site deliveries B02 slab pour completed Ongoing wall pours Ongoing jump form pours Hoarding rectification works are largely complete. 50% of jump form scope is complete. Core wall pouring will cease until slab pours catch up. 30% of B01 mezzanine poured. Stairs A are continuing up to B02 and formed up to B01 once B01 slab commences. Drilling into piles as part of climbing formwork as part of Wall 2 and 3 is complete
	Caverns Ongoing bracket installation Ongoing blockwork work Platform slabs poured

2. Reporting Requirements

A Planning Approval has been obtained to construct Sydney Metro City and Southwest Chatswood to Sydenham, which was identified as Critical State-Significant Infrastructure (CSSI) SSI 15_7400.

Conditions C9 to C16 of the Planning Approval describes monitoring and reporting requirements for the ISD Works.

Monitoring and reporting requirements are detailed in the Construction Environmental Management Plan (approved by NSW DPIE on 24 Dec 2020), and the following associated sub-plans:

- Soil, Water and Groundwater Management Sub-Plan; and
- Noise and Vibration Management Sub-Plan

The following report details environmental monitoring that was undertaken during this reporting period conducted as per the Planning Approval, the approved CEMP and its associated sub-plans.

A copy of the Planning Approval can be found by following the link below to the NSW DPIE website.

https://www.planningportal.nsw.gov.au/major-projects/project/3601

The results of the Construction Monitoring Program are included in this Construction Monitoring Report and will be submitted to the Acoustic Advisor (AA), Sydney Metro and the Environmental Representative (ER) who will endorse the document prior to submission to DPIE and being made publicly available on the project website located at <u>https://pittstreetsydneymetroisd.com.au.</u> CPB will also issue the Construction Monitoring report to Council, NRAR and EPA.

2.1 Inspections

Periodic environmental inspections are undertaken by CPB to verify the adequacy of all environmental mitigation measures. In addition, inspections are conducted before and following significant rainfall events that are predicted to be over 10mm in 24 hours. Weather data for the period is included in **Appendix A**.

The Site Environmental Plans (SEPs) identify the environmental control measures on both PSISD sites. SEPs and environmental controls are monitored through these periodic environmental inspections and are updated as required to reflect the changing nature of the PSISD sites. All records of inspections are documented in the CPB Environmental Inspection Checklist. Pitt Street South and Pitt Street North are inspected independently, and the caverns/ adits are included in those inspections. Internal CPB inspections are conducted by the CPB Environmental and Project Team. ER inspections are attended by Sydney Metro, CPB, the DPIE endorsed Acoustic Advisor (AA) and the ER.

One ER inspection and twelve internal inspections were completed during the reporting period. In July 2021 Covid-19 restrictions were enforced by the NSW Government and a construction pause was enforced from 19 to 30 July 2021. During this time all ER inspections were stopped, and fewer internal inspections took place. ER inspections commenced on a fortnightly basis from the 21 September 2021.

2.2 Water Quality Monitoring

2.2.1 Background

Water quality parameters were determined from the Discharge Impact Assessment (supporting the Construction Environmental Management Plan Rev 0) which was updated in May 2021 to include the TSS/NTU correlation following ER review of the first Construction Monitoring Report (Q1 2021) and clarification of the Discharge Management Protocol.

Water quality parameters for the discharge criteria for the Project are presented in Table 2-1.

Parameter	Unit	Discharge Criteria
рН	рН	6.5 - 8.5
Total Suspended Solids	mg/L	50mg/L (TSS:NTU correlation equivalent of 50NTU)
Oil and Grease	Visual	No visible surface sheen
Copper	mg/L	0.0013mg/L (50 percentile limit) 0.005mg/L (100 percentile limit)
Zinc	mg/L	0.015mg/L (50 percentile limit) 0.043mg/L (100 percentile limit)

Table 2-1 Water Quality Discharge Criteria Parameters	Table 2-1	Water Quality	/ Discharge	Criteria	Parameters
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CPB have a temporary stormwater connection for both the North site and South sites approved by the City of Sydney Council (CoSC) since 4 December 2020. In August 2021 the Trident 2 water clarification systems located at the North and South sites were decommissioned. The newly constructed stormwater pits for both sites are retaining all site water as the new water treatment system is commissioned. Once the systems are installed 5 compliant commissioning samples will be obtained prior to discharge into the stormwater system. The process for the water treatment is further detailed in the Water Management Procedure in **Appendix E**.

Water discharged from the site is predominantly rainwater and construction (potable) water. Negligible groundwater is encountered which is evidenced by the frequency of discharge relating more to rainfall events than construction activities.

2.2.2 Water Quality Monitoring Methodology

Readings from the Trident systems pH and NTU meters are logged at the commencement of discharge as well as field tests conducted by CPB Environmental Team using the calibrated water quality probe to confirm the readings on the Trident System. The Trident System operator conducts regular checks on the system during operation to ensure all meters are reading accurate values during discharge. The new methodology for testing and treating water for the new water treatment system is detailed in the Water Management Procedure in **Appendix E**.

Table 2-2 outlines the CPB water quality monitoring equipment that has been used during the reporting period.

Table 2-2 Water Quality Monitoring Equipment Details

Monitoring Type / Location	Equipment Details	Serial Number	Calibration Date
Water Quality Multi Parameter Meter	Yeo-Kal 611	426	28/01/2021

Laboratory testing is conducted monthly via grab samples to confirm the criteria in Table 2-1. Where limited rainfall events have occurred the grab samples are taken at the next available discharge. Laboratory Testing of water quality is undertaken at Eurofins Sydney Laboratory in Lane Cove West, a NATA accredited laboratory.

2.2.3 Water Quality Monitoring Results

Detailed discharge monitoring results for this reporting period are presented in Table 2-3.

Monthly laboratory samples were taken from the Trident System to validate the discharge criteria as per the Discharge Management Protocol. There was a monthly sampling event on the 12 July 2021 exceeding the Stage 2 protocol (exceedance of one of the parameters), the operator was notified and no further discharge occurred until an investigation into the exceedance was undertaken and actions were implemented. Subsequent samples were then taken at the next operation of the Trident System with acceptable results obtained prior to next discharge. No monthly samples exceeded the Stage 3 protocol exceedance (2 consecutive exceedances of the same parameter) during the reporting period. All discharges have been compliant with the Discharge Management Protocol.

No discharges occurred from Pitt Street South during the reporting period due to the retention of water in the newly constructed stormwater pit and minimal rainfall. The Pitt Street North Trident system was decommissioned at the end of July following which no further discharges to stormwater occurred as the water from the site was held in the excavated stormwater pit.

Parameter, Criteria or Measured Value									
Identifier	Dates Sampled	рН (6.5- 8.5)	Turbidity (<50NTU)	Copper (0.005mg/L)	Zinc (0.043mg/L)	Oil & Grease (visible)	Testing Method	Status	
PSN01	2/07/2021	7.8	4	-	-	Nil	Field	Compliant	
PSN01	6/07/2021	6.9	17.3	-	-	Nil	Field	Compliant	
PSN01	12/07/2021	7.6	12.8	-	-	Nil	Field	Compliant	
PSN01	12/07/2021	6.8	9	0.007	0.005	Nil	Laboratory	Stage 2 exceedance*	
PSN01	12/07/2021	-	-	0.005	-	Nil	Laboratory	Compliant**	
PSN01	15/07/2021	8.05	19.4	-	-	Nil	Field	Compliant	
PSN01	17/07/2021	6.7	6.7	-	-	Nil	Field	Compliant	

Table 2-3 Discharge Water Monitoring Data

- No testing undertaken as it was not required.

* Stage 2 exceedance of 1 criterion – Monthly lab sample taken during discharge. When exceedance of criteria was received, the operator was notified, further discharge was stopped and an investigation into the exceedance was undertaken. Discharge occurred once a compliant sample was obtained by the exceeded criteria.

**Samples taken after the WTP was cleaned out and water held in the discharge tank until results confirmed. Additional metal sample results were acceptable. Monthly laboratory samples confirmed.

2.2.4 Groundwater Monitoring Results

Water discharged from the site is predominantly rainwater collected and water used for dust suppression which is evident from the relation between rainfall events and the discharge dates. It is therefore determined that less than 7kL/day of groundwater seepage is being captured and discharged.

Monthly settlement monitoring of the buildings adjacent to the PSISD sites have been undertaken to monitor for any settlement due to groundwater seepage. Total Survey Solutions are engaged by CPB to monitor movement of structures over the entire Pitt Street Metro Project. This includes monitoring of

the external buildings adjacent to the North and South sites, walls of the North and South station boxes and through the caverns/ adits between them. The monitoring uses total station instruments to take direct measurements to reference targets on and inside adjacent buildings and walls to calculate any movement measured as an angle of tilt that is recorded live on Geomotion. The angles that trigger concern have been determined by Structural Engineers and alarms have been set to activate text messages if the triggers are reached. During the reporting period there were no settlement monitoring triggers.

2.3 Noise and Vibration Monitoring

2.3.1 Background

The Main Works Construction Noise and Vibration Impact Statement (CNVIS) is regularly reviewed to ensure it captures all works being undertaken prior to works commencing. **Table 2-4** outlines the CNVIS developed during the reporting period. The current CNVIS is provided on the project website at https://pittstreetsydneymetroisd.com.au.

Table 2-4 CNVIS' developed and approved during the reporting period.

CNVIS	Details
CNVIS – Station Box Main Works	22/09/2021 – Revision 11 issued to Sydney Metro and was endorsed by AA on 24/09/2021

Out of Hours works (OOHW) were conducted during the reporting period in accordance with the Sydney Metro Out of Hours Protocol and subsequent approved Out of Hours Works Applications (OOHWA).

On 27 September 2021 two new AA's, Daniel Weston and Carl Fokkema were appointed to the project to undertake all AA duties as stipulated in the CSSI.

2.3.2 Noise and Vibration Criteria

Relevant criteria relating to noise and vibration are outlined in the PSISD Construction Noise and Vibration Management Sub Plan and respective CNVIS. These are outlined in **Table 2-5**.

Table 2-5 Construction noise management levels at receivers^{1, 2}

Receiver type	Time of Day ²	EIS Chapter 10	Requirements	CSSI Approval Requirements			
		ICNG*	Ground Borne Noise	Sleep Disturbance	Construction Traffic	Condition E37 ³	Condition E41 ⁴
Pitt Street So	uth						
Residential	Day (Standard – 7am- 6pm)	74dB(A)L _{eq(15min)} 75dB(A)L _{eq(15min)} – Highly Noise Affected Threshold	45dB(A)L _{eq} 1 ₍ ^{5min)} (internal noise level)	N/A	60dB(A)L _{eq(15hr)}	60dB(A)L _{eq(15Min)} (internal noise level) 80dB(A)L _{eq(15Min)} (external noise level)**	N/A
	Day (OOH)	$69dB(A)L_{\text{eq(15min)}}$	45dB(A)L _{eq} ¹ (^{5min)} (internal noise level)	N/A	60dB(A)L _{eq(15hr)}	60dB(A)L _{eq(15Min)} (internal noise level) 80dB(A)L _{eq(15Min)} (external noise level)**	N/A
	Evening (OOH)	66dB(A)L _{eq(15min)}	40dB(A)L _{eq} ¹ (^{5min)} (internal noise level)	N/A	60dB(A)L _{eq(15hr)}	N/A	60dB(A)L _{eq(15Min)} (internal noise level) 80dB(A)L _{eq(15Min)} (external noise level)**
	Night (OOH)	63dB(A)L _{eq(15min)}	35dB(A)L _{eq1(} ^{5min)} (internal noise level)	65dB(A)L _{max} (external noise level)	55dB(A)L _{eq(15hr)}	N/A	45dB(A)L _{eq(15Min)} (internal noise level)

							65dB(A)L _{eq(15Min)} (external noise level)**
Commercial	When in use	$70dB(A)L_{eq(15min)}$	N/A	N/A	N/A	60dB(A)L _{eq(15Min)} (internal noise level)	N/A
						80dB(A)L _{eq(15Min)} (external noise level)**	
Pitt Street Nor	th						
Residential	Day (Standard – 7am- 6pm)	73dB(A)L _{eq(15min)} (weekdays) 75dB(A) –	45dB(A)L _{eq} ¹ (^{5min)} (internal noise level)	N/A	$60dB(A)L_{\text{eq(15hr)}}$	60dB(A)L _{eq(15Min)} (internal noise level)	N/A
		Highly Noise Affected Threshold				800B(A)L _{eq(15Min)} (external noise level)**	
	Day (OOH)***	68dB(A)L _{eq15min)}	45dB(A) L _{eq¹(5min)} (internal noise level)	N/A	60dB(A)L _{eq(15hr)}	60dB(A)L _{eq(15Min)} (internal noise level) 80dB(A)L _{eq(15Min)} (external noise level)**	N/A
	Evening	$66dB(A)L_{eq(15min)}$	40dB(A) L _{eq¹(5min)} (internal noise level)	N/A	$60dB(A)L_{\text{eq(15hr)}}$	N/A	60dB(A)L _{eq(15Min)} (internal noise level) 80dB(A)L _{eq(15Min)} (external noise level)**
	Night	64dB(A)L _{eq(15min)}	35dB(A) L _{eq¹(Smin)} (internal noise level)	65dB(A)L _{max} (external noise level)	55dB(A)L _{eq(15hr)}	N/A	45dB(A)L _{eq(15Min)} (internal noise level) 65dB(A)L _{eq(15Min)} (external noise level)**
Commercial	When in use	70dB(A)L _{eq(15min)}	N/A	N/A	N/A	60dB(A)L _{eq(15Min)} (internal noise level)	N/A
						80dB(A)L _{eq(15Min)} (external noise level)**	

*ICNG noise management levels for residential receives are based on the background noise levels presented in Section 4 of the CNVIS.

** External noise target determined by assuming a 20dB (A) noise reduction between outside and inside (closed windows).

- Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5m above ground level unless stated otherwise.
- 2. Noise management levels apply when receiver areas are in use only.
- 3. Exceedance of this level triggers the need for consideration of respite periods as per Condition of Approval E38.
- 4. Exceedance of this level triggers the need to consider additional mitigation methods as detailed in *Sydney Metro City and South West Noise and Vibration Strategy*

As a conservative approach, and in accordance with *British Standard BS* 7385-2, the vibration screening criteria has been applied to buildings at Pitt Street:

Screening criteria – 2.5 mm/s (Peak Particle Velocity (PPV))

2.3.3 Attended Monitoring Methodology

Attended noise monitoring was undertaken during this reporting period with details provided in Section 2.3.4. Attended monitoring is undertaken when two OOH scenarios occur simultaneously or if required on receival of a complaint.

All attended short-term noise monitoring was recorded over 15-minute sample intervals at the closest affected sensitive receiver. The recordings were taken from a height of 1.2 m from the ground, at least 1m from the walls or other major reflecting surfaces. The noise monitor was paused when there were high levels of traffic and pedestrian movement.

No attended vibration monitoring was required in this reporting period.

Table 2-6 CNVIS Requirements

Plan	Requirements
CNVIS - Section 7.2	In the event that use of hydraulic hammers or vibratory rollers is required, vibration monitoring will be conducted a receivers R1 and R3 in addition to those detailed above. Given these buildings are not heritage buildings, this can potentially be done in the event of complaint by occupants or by attended vibration measurement.
CNVIS – Appendix E	Long term vibration monitors will be installed at the heritage buildings sharing a common boundary with the site (Receivers C1, C2, C5 and R4). Monitoring to commence 2 days before the start of detailed excavation.

2.3.4 Attended Monitoring Results

Attended noise monitoring results during the reporting period are provided in Table 2-7 below and photos of monitoring can be seen in Appendix C. No attended vibration monitoring was undertaken during the monitoring period.

Monitoring Location	Date	Time	Receiver Type	Measured Value L _{eq} (15min)	Predicted Value (dBA) from CNVIS	Work Activity	Comments
R5	15/07/21	1:30	Residential	66.1	70 ¹	Facia install	ISD Compliant OOH Monitoring
C4	15/07/21	1:00	Commercial	59.8	70 ¹	Facia install	ISD Compliant OOH Monitoring
R5	15/07/21	1:15	Residential	63.8	70 ¹	Facia install	ISD Compliant OOH Monitoring
R5	20/09/21	18:11	Residential	65.8	72 ²	Concrete pumping	ISD Compliant OOH Monitoring
R5	20/09/21	19:21	Residential	65.2	72 ²	Concrete pumping	ISD Compliant OOH Monitoring

Table 2-7 Attended Noise Monitoring Data

¹Predicted value as per CNVIS r10

²Predicted value as per CNVIS r11

2.3.5 Real-Time Monitoring Methodology

Real-time noise and vibration monitoring equipment has been maintained and monitored by Acoustic Consultants Renzo Tonin since November 2020. The real-time links to the monitoring data have been submitted to Sydney Metro, DPIE and EPA and all records stored. Locations of these monitors are depicted in **Figure 2-1**. During the reporting period, all real-time vibration monitors and one noise monitor were removed as they were no longer required by the project, dates are detailed in **Table 2-8**. The removal process occurred in consultation with the AA, ER and in accordance with the planning approval and CNVMP.

It is noted that the noise monitoring locations are conservative and measure external noise levels, and not internal noise levels. The noise and vibration consultant has provided advice to CPB that a 25 dB(A)

(for the North) and 20dB(A) (for the South) noise reduction between the external noise level and internal noise level has been determined following on-site outside/inside noise level measurements. This has been adopted by the project in assessing performance against the CoA E38 as approved in the CNVMP.



Figure 2-1 Pitt Street Station real time monitoring locations during reporting period.

Condition E28 of the CSSI 15_7400 requires that vibration from construction activities does not exceed the vibration limits set out in the British Standard BS 7385-2:1993 Evaluation and measurement for vibration in buildings: Guide to damage levels from groundborne vibration which was interpreted in the CNVIS to set a limit of 2.5 mm/s peak component particle velocity as a conservative approach for the project.

Condition E38 of the CSSI 15_7400 requires that internal noise levels be less than $L_{eq}(15 \text{ minute}) 60 \text{ dB}(A)$ for at least 6.5 hours between 7am and 8pm (Upper Limit), of which at least 3.25 hours must be below $L_{Aeq}(15 \text{ minute}) 55 \text{ dB}(A)$ (Lower Limit). Within these hours, works are 'permitted' to generate noise greater than 60dB(A) for up to 6.5 hours (the equivalent of 26x15 minute periods), and 'requires' 3.25 hours of noise generated to be less than 55dB(A) (the equivalent of 13x15 minute periods). A SMS/Email alert system has been set up to notify the project team that CoA E38 limits are approaching.

Following receipt of an SMS / Email, site activities are reviewed and works with high noise are ceased. Compliance during the reporting period with this condition are shown below in **Tables 2-10, 2-11 and 2-12.**

The equipment used for noise measurements was an NTi Audio Type XL2 precision sound level analyser which is a class 1 instrument having accuracy suitable for field and laboratory use. The instrument was calibrated prior and subsequent to measurements using a Bruel & Kjaer Type 4231 calibrator. No significant drift in calibration was observed. All instrumentation complies with IEC 61672 (parts 1-3) '*Electroacoustics - Sound Level Meters*' and IEC 60942 '*Electroacoustics - Sound calibrators*' and carries current NATA certification (or if less than 2 years old, manufacturers certification). **Table 2-8** outlines the noise and vibration monitoring equipment that has been used during the reporting period.

Photos of the real -time equipment are shown in **Appendix B** and calibration certificates for the equipment in **Table 2-8** can be seen in **Appendix D**.

Monitoring Type / Location	Equipment Details	Serial Number	Last Calibration Date	Off Hire Date
Attended Noise	Rion NL-20	00143337	29/01/2021	N/A
Noise calibrator	Pulsar Model 106	Pulsar Model 106 93277 29/01/2021		N/A
Real Time Noise – N1	NTi Audio Type XL2	RTA07-020	22/01/2020	On site
Real Time Noise – N2	NTi Audio Type XL2	RTA07-022	20/12/2019	06/09/2021
Real Time Noise – N3	NTi Audio Type XL2	RTA07-021	19/12/2019	On site
Real Time Vibration – V1	Sigicom C12	70190	25/02/2021	09/09/2021
Real Time Vibration – V2	Sigicom C12	70250	25/02/2021	05/07/2021
Real Time Vibration – V3	Sigicom C12	70130	25/02/2021	06/09/2021
Real Time Vibration – V4	Sigicom C12	61860	01/12/2020	09/09/2021

 Table 2-8 Monitoring Equipment Details

2.3.6 Real-Time Monitoring Results

Real-time noise and vibration monitors were operating at Pitt Street North and Pitt Street South during the reporting period. Summarised real-time noise monitoring results outlining compliance with CoA E38 are presented for the North site in **Table 2-9** and for the South site in **Tables 2-10 and 2-11**.

Figures 2-2 to 2-3 below illustrates a sample of the unattended noise monitoring results obtained during the reporting period.

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	1/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	2/07/2021	7am	8pm	13	12	Yes	Yes
Pitt Street (North)	3/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	4/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	5/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	6/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	7/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	8/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	9/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	10/07/2021	7am	8pm	13	11.25	Yes	Yes
Pitt Street (North)	11/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	12/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	13/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	14/07/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	15/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	16/07/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	1/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	2/07/2021	7am	8pm	13	12	Yes	Yes

Table 2-9 Condition E38 Compliance North Site (Pitt Street)

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	3/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	4/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	5/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	6/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	7/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	8/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	9/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	10/07/2021	7am	8pm	13	11.25	Yes	Yes
Pitt Street (North)	11/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	12/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	13/07/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	14/07/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	15/07/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	16/07/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	17/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	18/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	19/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	20/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	21/07/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	22/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	23/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	24/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	25/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	26/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	27/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	28/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	29/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	30/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	31/07/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	1/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	2/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	3/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	4/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	5/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	6/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	7/08/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	8/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	9/08/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	10/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	11/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	12/08/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	13/08/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	14/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	15/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	16/08/2021	7am	8pm	13	11.75	Yes	Yes
Pitt Street (North)	17/08/2021	7am	8pm	13	12.75	Yes	Yes
Pitt Street (North)	18/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	19/08/2021	7am	8pm	13	9.75	Yes	Yes
Pitt Street (North)	20/08/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	21/08/2021	7am	8pm	13	12	Yes	Yes
Pitt Street (North)	22/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	23/08/2021	7am	8pm	13	12.5	Yes	Yes
Pitt Street (North)	24/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	25/08/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	26/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	27/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	28/08/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	29/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	30/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	31/08/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	1/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	2/09/2021	7am	8pm	13	10.5	Yes	Yes
Pitt Street (North)	3/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	4/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	5/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	6/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	7/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	8/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	9/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	10/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	11/09/2021	7am	8pm	13	12.25	Yes	Yes
Pitt Street (North)	12/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	13/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	14/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	15/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	16/09/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
Pitt Street (North)	17/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	18/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	19/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	20/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	21/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	22/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	23/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	24/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	25/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	26/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	27/09/2021	7am	8pm	12.75	11.75	Yes	Yes
Pitt Street (North)	28/09/2021	7am	8pm	12.75	11.75	Yes	Yes
Pitt Street (North)	29/09/2021	7am	8pm	13	13	Yes	Yes
Pitt Street (North)	30/09/2021	7am	8pm	13	13	Yes	Yes

Table 2-10 Condition E38 Compliance South Site (Bathurst Street – Monitor removed on 6/9/21)

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 L _{eq(15minute)} dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)L _{eq(15min}
South Site (Bathurst Street)	1/07/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Bathurst Street)	2/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Bathurst Street)	3/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Bathurst Street)	4/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Bathurst Street)	5/07/2021	7am	8pm	13	13	Yes	Yes

Table 2-11 Condition E38 Compliance South Site (Pitt Street)

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)L _{eq(15min}
South Site (Pitt Street)	1/07/2021	7am	8pm	13	6.75	Yes	Yes
South Site (Pitt Street)	2/07/2021	7am	8pm	13	8	Yes	Yes
South Site (Pitt Street)	3/07/2021	7am	8pm	13	8.5	Yes	Yes
South Site (Pitt Street)	4/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	5/07/2021	7am	8pm	13	7	Yes	Yes
South Site (Pitt Street)	6/07/2021	7am	8pm	13	12	Yes	Yes
South Site (Pitt Street)	7/07/2021	7am	8pm	13	12.25	Yes	Yes
South Site (Pitt Street)	8/07/2021	7am	8pm	13	12	Yes	Yes
South Site (Pitt Street)	9/07/2021	7am	8pm	13	7.75	Yes	Yes
South Site (Pitt Street)	10/07/2021	7am	8pm	13	8.25	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Pitt Street)	11/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	12/07/2021	7am	8pm	13	11	Yes	Yes
South Site (Pitt Street)	13/07/2021	7am	8pm	12.25	5.25	Yes	Yes
South Site (Pitt Street)	14/07/2021	7am	8pm	11.75	8.75	Yes	Yes
South Site (Pitt Street)	15/07/2021	7am	8pm	13	12.5	Yes	Yes
South Site (Pitt Street)	16/07/2021	7am	8pm	13	11	Yes	Yes
South Site (Pitt Street)	17/07/2021	7am	8pm	13	12.5	Yes	Yes
South Site (Pitt Street)	18/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	19/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	20/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	21/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	22/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	23/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	24/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	25/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	26/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	27/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	28/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	29/07/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Pitt Street)	30/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	31/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	23/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	24/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	25/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	26/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	27/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	28/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	29/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	30/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	31/07/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	1/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	2/08/2021	7am	8pm	13	12	Yes	Yes
South Site (Pitt Street)	3/08/2021	7am	8pm	13	11.75	Yes	Yes
South Site (Pitt Street)	4/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	5/08/2021	7am	8pm	13	10.5	Yes	Yes
South Site (Pitt Street)	6/08/2021	7am	8pm	13	11.75	Yes	Yes
South Site (Pitt Street)	7/08/2021	7am	8pm	12.75	12.75	Yes	Yes
South Site (Pitt Street)	8/08/2021	7am	8pm	13	13	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Pitt Street)	9/08/2021	7am	8pm	13	12.75	Yes	Yes
South Site (Pitt Street)	10/08/2021	7am	8pm	13	9.5	Yes	Yes
South Site (Pitt Street)	11/08/2021	7am	8pm	13	7.25	Yes	Yes
South Site (Pitt Street)	12/08/2021	7am	8pm	13	11.5	Yes	Yes
South Site (Pitt Street)	13/08/2021	7am	8pm	13	6.5	Yes	Yes
South Site (Pitt Street)	14/08/2021	7am	8pm	13	8	Yes	Yes
South Site (Pitt Street)	15/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	16/08/2021	7am	8pm	12.75	11.5	Yes	Yes
South Site (Pitt Street)	17/08/2021	7am	8pm	13	9	Yes	Yes
South Site (Pitt Street)	18/08/2021	7am	8pm	13	10.75	Yes	Yes
South Site (Pitt Street)	19/08/2021	7am	8pm	12.75	7.75	Yes	Yes
South Site (Pitt Street)	20/08/2021	7am	8pm	12.5	6.25	Yes	Yes
South Site (Pitt Street)	21/08/2021	7am	8pm	12.5	7.25	Yes	Yes
South Site (Pitt Street)	22/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	23/08/2021	7am	8pm	13	11	Yes	Yes
South Site (Pitt Street)	24/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	25/08/2021	7am	8pm	13	10.5	Yes	Yes
South Site (Pitt Street)	26/08/2021	7am	8pm	13	10	Yes	Yes
South Site (Pitt Street)	27/08/2021	7am	8pm	13	10.25	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Pitt Street)	28/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	29/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	30/08/2021	7am	8pm	12.75	6.5	Yes	Yes
South Site (Pitt Street)	31/08/2021	7am	8pm	13	7.25	Yes	Yes
South Site (Pitt Street)	23/08/2021	7am	8pm	13	11	Yes	Yes
South Site (Pitt Street)	24/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	25/08/2021	7am	8pm	13	10.5	Yes	Yes
South Site (Pitt Street)	26/08/2021	7am	8pm	13	10	Yes	Yes
South Site (Pitt Street)	27/08/2021	7am	8pm	13	10.25	Yes	Yes
South Site (Pitt Street)	28/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	29/08/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	30/08/2021	7am	8pm	12.75	6.5	Yes	Yes
South Site (Pitt Street)	31/08/2021	7am	8pm	13	7.25	Yes	Yes
South Site (Pitt Street)	1/09/2021	7am	8pm	13	6.25	Yes	Yes
South Site (Pitt Street)	2/09/2021	7am	8pm	13	9	Yes	Yes
South Site (Pitt Street)	3/09/2021	7am	8pm	13	7	Yes	Yes
South Site (Pitt Street)	4/09/2021	7am	8pm	11.75	9.75	Yes	Yes
South Site (Pitt Street)	5/09/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	6/09/2021	7am	8pm	12.5	5.25	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 Leq(15minute) dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)Leq(15min)	Min 3.25 hrs below 55dB(A)Leq(15min
South Site (Pitt Street)	7/09/2021	7am	8pm	12.25	7	Yes	Yes
South Site (Pitt Street)	8/09/2021	7am	8pm	12.5	5.75	Yes	Yes
South Site (Pitt Street)	9/09/2021	7am	8pm	11.75	5.25	Yes	Yes
South Site (Pitt Street)	10/09/2021	7am	8pm	11.25	4	Yes	Yes
South Site (Pitt Street)	11/09/2021	7am	8pm	11.75	9.25	Yes	Yes
South Site (Pitt Street)	12/09/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	13/09/2021	7am	8pm	12	8.5	Yes	Yes
South Site (Pitt Street)	14/09/2021	7am	8pm	12.25	8	Yes	Yes
South Site (Pitt Street)	15/09/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	16/09/2021	7am	8pm	12.75	6.25	Yes	Yes
South Site (Pitt Street)	17/09/2021	7am	8pm	12	6.25	Yes	Yes
South Site (Pitt Street)	18/09/2021	7am	8pm	9	7.25	Yes	Yes
South Site (Pitt Street)	19/09/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	20/09/2021	7am	8pm	13	7.75	Yes	Yes
South Site (Pitt Street)	21/09/2021	7am	8pm	12	6.25	Yes	Yes
South Site (Pitt Street)	22/09/2021	7am	8pm	12.25	8.5	Yes	Yes
South Site (Pitt Street)	23/09/2021	7am	8pm	11.25	7.5	Yes	Yes
South Site (Pitt Street)	24/09/2021	7am	8pm	9	6	Yes	Yes
South Site (Pitt Street)	25/09/2021	7am	8pm	10.5	8.75	Yes	Yes

Monitoring Location (Address)	Monitoring Date	Start Time	End Time	Period below 60 L _{eq(15minute)} dB(A) - (Hours)	Period below 55 L _{eq(15minute)} dB(A) - (Hours)	Min 6.5 hrs below 60dB(A)L _{eq(15min)}	Min 3.25 hrs below 55dB(A)L _{eq(15min}
South Site (Pitt Street)	26/09/2021	7am	8pm	13	13	Yes	Yes
South Site (Pitt Street)	27/09/2021	7am	8pm	12.25	7.5	Yes	Yes
South Site (Pitt Street)	28/09/2021	7am	8pm	13	8.75	Yes	Yes
South Site (Pitt Street)	29/09/2021	7am	8pm	12.5	7.75	Yes	Yes
South Site (Pitt Street)	30/09/2021	7am	8pm	12.5	7.25	Yes	Yes



Figure 2-2 Unattended noise monitoring at Pitt Street South



Figure 2-3 Unattended noise monitoring at Pitt Street North

As indicated in **Tables 2-9 to 2-11**, compliance with condition E38 has been achieved during the reporting period. Noise levels in this reporting period were generally compliant with the predicted noise levels set out in the CNVIS. At the end of September anchor works occurred at Pitt Street South Site and the pneumatic rotary drill used had higher noise levels than predicted as the drill had to core deeper holes than anticipated. Due to the high noise emitted from the drill, a hydraulic rotary drill with reduced noise levels was later sourced to complete the remaining anchor works.

Seven (7) exceedances of the relevant vibration criteria were recorded during the reporting period as detailed below in **Table 2-12**. None of these exceedances are linked to PSISD works. No building damage has been observed to be the result of any PSISD works.

Monthly vibration monitoring results over the reporting period are presented below in **Figures 2-4 to 2-13** for each of the four (4) monitoring sites. It is noted the graphs show the unweighted results.

Date	Location	Recorded Vibration (mm/s) – Time 24hrs	Screening level (mm/s)	Investigation Results
01/07/2021	250 Pitt Street	113 mm/s (10:44)	2.5 mm/s	During the vibration exceedance at the 250 Pitt Street, the corresponding vibration levels measured at the Boutique Hotel are typically below 1.0mm/s. Given that the vibration monitors at the Boutique Hotel and 250 Pitt Street are within close proximity to each other (approximately 24m) it is expected that a noticeable vibration event should have been measured at the Boutique Hotel, especially since the level measured at 250 Pitt Street was significantly high. Furthermore, a singular peak event in vibration is not typical for construction works. Given that there is not a noticeable corresponding vibration event at Boutique Hotel and the atypical nature of the exceedance, it is expected that the vibration exceedance is due to a localised event such as the equipment being bumped. The vibration exceedance is not due PSISD construction works.
05/07/2021	250 Pitt Street	188, 208, 273 mm/s (10:05, 0:07, 10:12)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while servicing the vibration monitor. The vibration exceedance is not due PSISD construction works.
05/07/2021	City of Sydney Fire Station	291.73 mm/s (10:30)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while uninstalling the vibration monitor. The vibration exceedance is not due PSISD construction works.
29/07/2021	250 Pitt Street	55.63 mm/s (11:12)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while servicing the vibration monitor. The vibration exceedance is not due PSISD construction works.
09/09/2021	Castlereagh Boutique Hotel	17.66 mm/s (11:02)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while uninstalling the vibration monitor. The vibration exceedance is not due PSISD construction works.
06/09/2021	Castlereagh Boutique Hotel	255 mm/s (11:55)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while uninstalling the vibration monitor. The vibration exceedance is not due PSISD construction works.
09/09/2021	250 Pitt Street	2.93 mm/s (11:26)	2.5 mm/s	Exceedance measured due to the impacts on the equipment while uninstalling the vibration monitor. The vibration exceedance is not due PSISD construction works.

 Table 2-12 Real-Time Vibration Data Exceedances



Figure 2-4 Monthly Vibration Monitoring Results for Castlereagh Boutique Hotel - 01/07/2021 – 31/07/2021



Figure 2-5 Monthly Vibration Monitoring Results for City of Sydney Fire Station - 01/07/2021 – 31/07/2021



Figure 2-6 Monthly Vibration Monitoring Results for Edinburgh Castle Hotel - 01/07/2021 – 31/07/2021



Figure 2-7 Monthly Vibration Monitoring Results for 250 Pitt Street - 01/07/2021 - 31/07/2021



Figure 2-8 Monthly Vibration Monitoring Results for Castlereagh Boutique Hotel - 01/08/2021 – 31/08/2021



Figure 2-9 Monthly Vibration Monitoring Results for Edinburgh Castle Hotel - 01/08/2021 – 31/08/2021



Figure 2-10 Monthly Vibration Monitoring Results for 250 Pitt Street - 01/08/2021 – 31/08/2021



Figure 2-11 Monthly Vibration Monitoring Results for Castlereagh Boutique Hotel - 01/09/2021 – 10/10/2021



Figure 2-12 Monthly Vibration Monitoring Results for Edinburgh Castle Hotel - 01/09/2021 – 10/10/2021


Figure 2-13 Monthly Vibration Monitoring Results for 250 Pitt Street - 01/09/2021 - 10/10/2021

3. Conclusion

Based on the monitoring results presented in this report, compliance with the monitoring programs and criteria for Water Quality and Groundwater has been verified.

Observed noise and vibration levels do not exceed the forecasted levels presented in the project CNVIS Rev 10 and Rev 11 Based on the monitoring results and site investigations, CPB considers that the noise and vibration associated with the stated construction works was compliant with the project approvals and requirements during the monitoring period.

4. Appendices

A - Weather Data

Sydney, New South Wales July 2021 Daily Weather Observations

Most observations from Observatory Hill, but some from Fort Denison and Sydney Airport.



Australian Government

** Bureau of Meteorology

		Temps Bain Evan Sun Max wind gust 9am				3pm															
Date	Day	Min	Max	Каш	Evap	Sun	Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
	1 Th	10.9	17.7	3.4	0.8	1.5	W	20	03:31	11.6	100	8	W	17	1025.5	15.9	85	7	ENE	9	1021.8
	2 Fr	11.1	20.7	3.0	1.4	5.3	NNW	26	20:33	12.0	100	8	WNW	11	1018.8	20.4	63	2	ESE	6	1016.1
	3 Sa	8.5	20.8	0.2	1.8	7.7	W	30	07:41	10.3	91	1	WNW	22	1018.8	18.7	56	3	E	11	1015.8
	4 Su	7.9	16.0	0	1.3	9.8	W	39	04:44	9.9	66	1	WNW	20	1022.6	15.6	45	1	WNW	15	1019.3
	5 Mo	6.7	17.5	0	3.6	9.5	W	35	19:32	9.1	75	1	W	20	1021.1	16.9	42	1	W	13	1018.5
	6 Tu	6.1	16.7	0	2.8	7.5	W	39	07:49	8.1	75	7	W	26	1022.1	15.6	48	7	WNW	7	1020.1
	7 We	5.5	19.1	0	2.2	7.5	W	31	03:59	7.6	80	1	W	22	1026.1	18.3	45	4	SSE	6	1023.6
	8 Th	6.3	17.2	0	0.6	6.8	WNW	22	07:49	8.5	94	4	WNW	17	1024.4	15.8	65	7	ENE	13	1020.3
	9 Fr	8.5	12.5	0	1.8	0.0	W	37	23:30	9.9	90	8	WNW	15	1015.1	12.0	94	8	W	13	1011.7
1	0 Sa	9.9	14.1	5.2	2.0	0.1	SW	48	10:43	12.5	86	7	WSW	26	1017.0	13.2	87	7	SW	19	1018.9
1	1 Su	9.6	17.5	21.8	28.6	5.0	SW	35	02:59	10.1	99	6	W	19	1026.8	14.7	71	5	SSW	13	1024.7
1	2 Mo	8.2	17.2	0.2	2.2	7.3	W	26	07:35	9.4	98	7	W	17	1024.6	16.6	65	7	NE	13	1019.9
1	3 Tu	8.1	19.6	0.2	0.8	8.6	WNW	26	00:40	10.2	90	1	WNW	15	1019.2	18.5	47	6	NW	13	1015.8
1	4 We	10.2	16.4	0	3.2	0.2	NNW	30	00:11	13.2	67	7	NNW	6	1014.4	12.9	87	7	E	6	1010.1
1	5 Th	12.7	23.4	1.8	1.4	6.1	SW	33	16:45	15.8	74	1	N	19	1006.3	22.5	53	4	N	13	1001.9
1	6 Fr	10.5	19.1	0.2	2.2	8.4	WNW	72	15:16	13.5	80	1	NNE	9	996.7	17.4	45	2	WNW	31	993.1
1	7 Sa	11.9	14.6	2.0	6.6	9.1	NW	69	12:23	12.7	60	3	NW	33	997.0	13.7	44	1	NW	39	996.7
1	8 Su	10.0	19.3	0	4.4	9.5	W	44	10:09	13.2	63	1	W	28	1011.8	18.9	41	3	WSW	20	1012.4
1	9 Mo	6.8	16.2	0	4.6	5.1	W	33	10:46	9.6	77	2	WNW	22	1018.1	15.0	52	7	WNW	17	1014.1
2	20 Tu	7.5	15.9	0	3.4	5.6	WNW	48	12:55	10.9	63	3	WNW	13	1011.2	14.1	52	7	NW	26	1006.0
2	21 We	8.9	15.0	0	4.0	5.1	SSW	61	12:57	9.9	54	5	W	24	1013.3	14.8	44	1	SSW	30	1015.2
2	22 Th	5.2	18.3	0	2.4	9.5	W	33	01:05	8.2	70	1	WNW	20	1019.2	17.9	40	3	N	22	1013.9
2	23 Fr	8.2	17.5	0.4	3.0	2.2	NNW	41	05:26	10.9	76	7	N	4	1010.7	14.5	73	7	ENE	11	1005.9
2	24 Sa	10.9	18.6	0	2.2	6.9	W	61	14:39	11.7	82	7	W	19	1003.0	17.8	40	1	WNW	35	1000.9
2	25 Su	10.2	16.2	0	7.4	9.6	W	78	11:31	11.4	50	1	W	33	1005.8	14.8	32	4	WNW	33	1008.5
2	26 Mo	9.5	20.6	0	2.2	4.5	WNW	44	15:07	13.5	64	1	WNW	11	1015.6	18.7	40	6	WNW	30	1014.3
2	27 Tu	11.2	20.5	0	4.0	9.6	WNW	43	10:59	15.2	63	1	NNW	9	1019.2	19.8	43	6	NW	24	1015.2
2	28 We	12.8	25.4	0	6.4	6.2	NW	74	19:30	16.7	46	5	NNE	6	1008.4	23.7	30	7	NW	33	1003.6
2	29 Th	11.0	19.4	0	6.8	9.6	W	52	10:14	12.5	52	1	W	17	1014.0	18.9	27	0	W	24	1014.2
3	30 Fr	5.9	18.1	0	3.4	9.7	N	26	17:44	9.4	69		WNW	19	1021.0	15.9	52	0	E	11	1017.4
3	31 Sa	8.2	23.3	0	3.8	6.6	NNE	28	13:49	14.9	50	6	NNW	7	1014.6	21.7	46	3	NE	19	1009.0
Statis	tics for Ju	ily 2021																			
	Mean	9.0	18.2		3.9	6.5				11.4	74	3		17	1015.6	16.9	53	4		18	1012.9
	Lowest	5.2	12.5		0.6	0.0				7.6	46	1	N	4	996.7	12.0	27	0	#	6	993.1
	Highest	12.8	25.4	21.8	28.6	9.8	W	78		16.7	100	8	#	33	1026.8	23.7	94	8	NW	39	1024.7
	Total			38.4	121.3	200.1															
									_												

Temperature, humidity and rainfall observations are from Sydney (Observatory Hill) {station 066214}. Pressure, cloud, evaporation and sunshine observations are from Sydney Airport AMO {station 066037}. Wind observations are from Fort Denison {station 066022}

Sydney Airport is about 10 km to the south of Observatory Hill.

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Sydney, New South Wales August 2021 Daily Weather Observations

Most observations from Observatory Hill, but some from Fort Denison and Sydney Airport.



Australian Government

Bureau of Meteorology

		Temps Bain Even Sun Max wind gust 9am			3pm																
Date	Day	Min	Max	Kalli	Evap	Sun	Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Su	14.9	25.6	0	4.8	5.0				20.2	57	1	WNW	15	1006.4	20.1	47	7	WSW	28	1009.0
2	2 Mo	8.1	18.9	0	3.2	8.6	NE	41	22:56	11.4	74	1	WNW	17	1020.9	18.2	54	3	E	9	1017.4
	B Tu	11.4	20.2	3.4	4.2	8.8	WNW	52	12:07	13.2	93	3	W	19	1010.2	19.1	36	1	WNW	30	1007.2
4	l We	9.3	16.6	0	7.6	9.9	W	69	16:18	11.8	53	1	WSW	15	1012.6	16.0	37	1	W	35	1011.7
5	5 Th	9.1	20.2	0	3.8	10.0	W	44	15:03	12.9	66	1	W	13	1016.8	19.3	38	1	W	22	1016.1
6	6 Fr	9.0	21.6	0	3.0	10.0	W	39	10:44	12.0	68	1	WNW	17	1022.2	21.0	35	1	NW	7	1019.6
7	′ Sa	8.3	20.0	0	4.6	10.1	SW	39	20:55	10.4	71	1	WNW	19	1025.9	19.5	37	0	W	7	1021.7
8	3 Su	9.9	15.3	0.8	2.6	0.0	ESE	43	14:11	11.5	95	7	W	15	1031.9	13.5	86	7	E	9	1030.5
9) Mo	9.7	20.4	4.6	2.2	8.9	ENE	33	15:10	11.9	92	4	WNW	13	1031.6	18.6	55	2	NE	20	1026.6
10) Tu	8.8	22.8	0	3.4	8.0	NW	35	13:54	11.4	93	2	WNW	11	1028.2	22.0	44	6	N	15	1023.6
11	We	11.4	24.2	0.2	4.0	10.1	NNW	48	13:42	17.9	54	0	NNW	20	1024.7	23.9	39	1	NNW	26	1019.0
12	<u>2</u> Th	14.4	21.6	0	8.0	8.7	W	50	03:26	15.3	50	1	S	17	1025.0	20.9	25	1	WNW	17	1024.1
13	3 Fr	8.3	21.6	0	6.0	10.6	W	37	08:50	11.5	60	0	W	26	1027.9	20.6	41	0	ENE	17	1023.9
14	I Sa	8.0	20.3	0	3.6	10.2	WNW	24	07:06	11.6	72	1	W	20	1029.2	19.3	55	1	E	15	1025.8
15	5 Su	8.4	22.2	0	2.2	10.5	W	28	08:46	11.9	72	1	WNW	22	1025.7	22.0	27	1	NW	7	1021.1
16	6 Mo	10.1	23.2	0	5.4	10.6	W	65	18:53	13.5	51	0	W	6	1020.8	22.9	27	0	WNW	13	1016.8
17	7 Tu	9.8	20.6	0	3.6	10.6	W	41	00:10	13.3	54	1	W	24	1022.1	18.3	33	1	SE	17	1019.9
18	3 We	8.8	20.1	0	5.4	9.6	W	26	02:10	11.0	67	1	WNW	22	1026.1	19.8	49	1	E	15	1022.8
19	9 Th	8.1	20.1	0	4.0	9.8	W	22	04:25	12.3	78	7	WNW	13	1024.7	18.5	64	1	E	17	1020.4
20) Fr	9.6	24.0	0	3.8	10.3	ENE	26	14:00	12.9	81	1	WNW	22	1021.5	21.3	43	1	E	17	1016.8
21	Sa	12.9	24.4	0	3.8	5.5	NNE	22	12:53	14.3	70	7	WNW	11	1020.3	23.9	41	1	N	6	1015.9
22	2 Su	11.1	25.4	0	3.8	10.2	NE	37	16:40	13.4	74	1	WNW	13	1021.0	25.2	40	1	NE	20	1015.4
23	3 Mo	13.4	24.0	0	6.6	3.2	NW	63	14:46	21.6	53	5	NW	24	1013.3	22.9	44	7	NW	30	1009.1
24	l Tu	9.3	11.5	32.6	7.0	0.0	W	74	22:56	9.3	97	8	W	33	1007.4	9.7	98	8	W	31	1002.3
25	5 We	7.9	15.7	39.8		1.4	WSW	76	09:21	11.5	59	6	W	35	1010.8	15.6	51	7	W	31	1011.1
26	6 Th	9.2	19.8	0	3.2	9.7	W	37	09:31	12.6	56	1	W	24	1018.2	18.9	47	5	SSE	17	1016.0
27	7 Fr	8.2	21.0	0	3.6	5.5	W	44	19:08	12.3	75	3	WNW	15	1016.9	18.6	32	7	W	19	1013.1
28	3 Sa	10.6	18.4	0	3.8	2.5	W	41	09:41	13.5	57	7	W	26	1016.8	16.2	61	7	SSW	15	1015.8
29) Su	8.1	18.9	0	2.4	2.9	W	31	05:50	13.4	79	6	W	19	1015.9	17.8	52	7	ENE	11	1010.8
30) Mo	8.6	20.9	0	1.4	8.9	W	26	04:54	13.0	69	3	W	17	1018.9	18.2	48	7	E	15	1017.0
31	l Tu	8.6	22.6	0	4.6	10.3	NE	28	16:20	13.3	76	0	WNW	15	1023.2	20.9	48	1	E	19	1019.7
Statist	ics for Au	ugust 20	21																		
	Mean	9.8	20.7		4.2	7.8				13.1	69	2		18	1020.6	19.4	46	3		17	1017.4
	Lowest	7.9	11.5		1.4	0.0				9.3	50	0	W	6	1006.4	9.7	25	0	N	6	1002.3
	Highest	14.9	25.6	39.8	8.0	10.6	WSW	76		21.6	97	8	W	35	1031.9	25.2	98	8	W	35	1030.5
	Total			81.4	125.6	240.4															
Ŧ.,	1 1.114				0.1	<u> </u>		000044	_			1.1			10	O IDIAIO (O)			10.00.1170		0001

Temperature, humidity and rainfall observations are from Sydney (Observatory Hill) {station 066214}. Pressure, cloud, evaporation and sunshine observations are from Sydney Airport AMO {station 066037}. Wind observations are from Fort Denison {station 066022}

Sydney Airport is about 10 km to the south of Observatory Hill.

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Sydney, New South Wales September 2021 Daily Weather Observations

Most observations from Observatory Hill, but some from Fort Denison and Sydney Airport.



Australian Government

Bureau of Meteorology

ſ		Temps Bain Evan Sun Max wind gust				9am				3pm												
	Date	Day	Min	Max	Nain	Εvap	Jun	Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
			°C	°C	mm	mm	hours		km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
	1	We	10.5	25.7	0	5.0	10.7	W	24	02:29	14.7	62	3	WNW	19	1027.1	22.9	44	1	E	13	1026.2
	2	Th	13.5	22.6	0	3.4	8.6	NE	52	15:25	18.8	87	7	NE	22	1030.3	21.1	68	3	NE	30	1026.2
	3	Fr	14.0	23.5	0	4.8	10.4	NE	52	16:00	18.4	66	1	N	9	1026.1	22.5	57	1	NE	28	1020.3
	4	Sa	15.4	22.9	0	7.6	0.0	N	35	11:51	18.4	63	8	NNE	19	1019.2	19.2	70	8	WNW	15	1016.4
	5	Su	13.2	19.1	11.6	5.0	7.3	W	56	11:31	15.1	59	1	NW	19	1014.5	18.0	39	6	W	33	1013.7
	6	Мо	9.4	18.9	0.8	4.8	10.7	WSW	52	10:49	13.4	55	1	W	28	1023.6	18.0	35	1	S	33	1024.0
	7	Tu	7.2	24.4	0.2	5.6	10.7	WSW	50	11:39	14.0	57	1	WNW	19	1026.1	24.0	25	1	W	20	1022.9
	8	We	9.6	21.7	0	5.0	10.7	ENE	26	13:53	15.0	63	1	W	13	1031.7	19.5	58	0	ENE	17	1026.8
	9	Th	9.7	28.3	0	7.8	9.5	NW	31	19:42	15.7	61	6	W	19	1026.5	27.8	24	4	W	13	1020.6
	10	Fr	14.9	24.8	0	6.4	5.5	SSE	43	11:39	21.6	34	5	WNW	11	1021.5	18.9	70	6	ESE	19	1021.0
	11	Sa	11.4	29.3	0	4.0	10.5	NNW	41	15:18	15.4	87	0	WNW	7	1017.7	29.1	24	0	NNW	24	1010.5
	12	Su	15.4	30.1	0	9.6	10.7	NW	59	15:30	23.7	32	1	NNW	26	1006.3	29.3	13	1	WNW	35	1002.1
ſ	13	Мо	12.1	17.7	0	11.6	6.4	S	54	15:39	16.0	54	3	SSW	11	1014.1	15.9	57	7	SSE	22	1015.5
	14	Tu	9.7	15.9	18.4	7.2	5.0	SSW	57	13:05	12.5	75	5	SSW	13	1022.4	11.7	91	7	SSW	20	1022.1
	15	We	8.8	18.0	4.8	2.6	9.9				13.5	70	1		Calm	1024.5	16.4	61	2		Calm	1022.5
	16	Th	8.6	18.3	0.4	4.4	7.3				12.8	80	5			1024.6	16.6	62	3			1022.0
	17	Fr	9.5	21.3	0.2	2.8	10.8				15.7	76	1			1023.0	20.9	57	0	NE	24	1018.1
	18	Sa	15.7	24.3	0	8.8	0.7	W	48	15:55	20.7	48	7	N	17	1013.5	18.9	78	8	N	6	1012.8
	19	Su	10.6	24.4	2.4	3.4	11.0	W	33	12:40	17.5	44	1	NW	15	1022.4	23.8	25	1	WNW	15	1017.1
ſ	20	Мо	14.2	26.4	0	7.4	10.5	W	65	19:49	20.5	39	0	N	22	1014.1	26.0	20	1	WNW	28	1007.5
	21	Tu	9.9	17.4	0	9.4	9.3	SSW	65	14:21	12.9	45	3	WSW	17	1016.1	17.0	45	5	S	33	1017.9
	22	We	8.1	19.8	3.2	5.8	10.6	SSW	44	00:08	14.6	56	1	W	20	1023.7	19.5	52	1	SSE	17	1021.8
	23	Th	10.0	26.6	0	4.0	11.0	WNW	28	08:46	16.5	61	1	WNW	22	1020.3	22.4	49	0	ENE	17	1014.8
	24	Fr	11.7	27.1	0	5.8	10.8	W	48	13:03	21.0	48	0	WNW	11	1014.4	25.6	30	4	WNW	28	1008.8
	25	Sa	13.6	21.5	0	9.2	9.0	SE	50	14:12	20.0	31	1	SSW	20	1015.3	16.5	64	6	SSE	37	1016.8
	26	Su	10.9	16.0	3.0	7.4	3.1	SSE	48	12:03	13.9	63	7	S	26	1026.3	15.5	60	7	SSE	20	1025.9
Ī	27	Мо	9.7	21.0	0.4	4.4	5.8	E	33	13:41	15.3	74	7	W	9	1026.5	18.3	53	7	NE	20	1021.9
	28	Tu	10.6	21.9	0	5.8	8.5	NE	48	17:23	18.0	65	2	NNE	4	1022.0	19.2	67	4	NE	17	1017.2
	29	We	14.1	21.9	0	5.8	2.7	ENE	24	11:37	20.6	63	6	NE	7	1017.9	16.9	93	8	NE	11	1014.2
	30	Th	14.5	23.7	2.4	0.2	7.9	ENE	33	15:18	20.7	75	5	NNE	9	1012.4	23.1	64	6	NE	13	1008.9
ſ	Statistic	s for Se	ptembe	r 2021																		
ſ		Mean	11.6	22.5		5.8	8.2				16.9	59	3		15	1020.8	20.5	51	3		20	1017.9
ſ		Lowest	7.2	15.9		0.2	0.0				12.5	31	0		Calm	1006.3	11.7	13	0		Calm	1002.1
ſ		Highest	15.7	30.1	18.4	11.6	11.0	#	65		23.7	87	8	W	28	1031.7	29.3	93	8	SSE	37	1026.8
ſ		Total			47.8	175.0	245.6															
-																						

Temperature, humidity and rainfall observations are from Sydney (Observatory Hill) {station 066214}. Pressure, cloud, evaporation and sunshine observations are from Sydney Airport AMO {station 066037}. Wind observations are from Fort Denison {station 066022}

Sydney Airport is about 10 km to the south of Observatory Hill.

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Users of this product are deemed to have read the information and accepted the conditions described in the notes at http://www.bom.gov.au/climate/dwo/IDCJDW0000.pdf

B – Photos of Real-Time Equipment



Figure B-1 N1 Pitt Street North



Figure B-2 N2 Pitt Street South (facing Pitt Bathurst)



Figure B-3 N3 Pitt Street South (facing Pitt Street)



Figure B-4 V1 Castlereagh Boutique Hotel



Figure B-5 V2 Sydney Fire Station



Figure B-6 V3 Edinburgh Castle Hotel



Figure B-7 V4 250 Pitt Street

C – Attended Monitoring Photos



Figure C-1 R5 Attended Monitoring 15/07/2021



Figure C-2 R5 Attended Monitoring 20/09/2021

D – Calibration Certificates



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Acoustic Calibration & Testing Laboratory

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

Certificate of Calibration Sound Level Meter

Calibration Date 17/01/2020 Job No RB762 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Operator JA

Instrument Make	NTI	Model	XL2	Serial No	#A2A-13500-E0 #RTA07-020
Microphone Make	NTI	Model	MC230	Serial No	#9533
Preamplifier Make	NTI	Model	MA220	Serial No	#6540
Ext'n Cable Make	NTI	Model	N/A	Serial No	N/A
Accessories	Nil			Firmware	4.2

SLM Type Filters Class

		-			
Environmental	Measured				
Conditions	Start	End			
Air Temp. (°C)	23.2	23.5			
Rel. Humidity (%)	58.9	57.4			
Air Pressure (kPa)	100.6	99.9			

Applicable Standards: Periodic tests were performed in accordance with procedures from IEC 61672-3 :2013 and IEC 61260-3 :2016

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: Accredited for compliance with ISO/IEC 17025 - Calibration. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full.

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 and IEC 61260-3:2016, 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 specifications of IEC 61672-1:2013 and IEC 61260-1:2014 because (a) evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-12013 and IEC 61260-12014 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-32013 and IEC 61260-32016 cover only a limited subset of the specifications in IEC 61672-12013 and IEC 61260-12014.

Authorized Signatory: NATA NATA Accredited Laboratory Number 14966 WORLD RECOGNISED ACCREDITATION Print Name: Renzo Tonin Date: 22 January 2020



NATacoustic Sound Level Meter Verification - Summary of Tests									
Calibration Date 17/01/2020 Job No Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD	RB762		Operator	JA					
Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010									
1. Instrument Information & Reference Conditions									
Instrument Make NTI Model Microphone Make NTI Model	I XL2 I MC230		Serial No Serial No	#A2A-13500-E0 #9533	#RTA07-020				
Preamplifier Make NTI Model	I MA220		Serial No	#6540					
Ext'n Cable Make NTI Model	I N/A		Serial No Firmware	N/A 4 2					
			- Thinware	7.2					
Freq Weightings FLAT No A Yes C Time Weightings Fast Yes Slow Yes Impulse	Yes	Z Yes							
	100								
SLM Type 1 Filter Class 1									
Instruction Manual is Available						Yes			
2. Preliminary Inspection and Power Supply				Lo	gger Inspected	Yes			
				Calibration E	quipment Okay	Yes			
				Power St Power S	upply Ok (Start)	Yes			
3. Environmental Conditions			Environmer	tal Conditions	Meas	ured End			
				Air Temp. (°C)	23.2	23.5			
			Re	el. Humidity (%)	58.9	57.4			
			All	Conforming	Yes	Yes			
					Value /	Uncort			
Test Description	ı				Conforming	(+/-)			
(a) Initial Calibration	1		Calibratio		1000.0	N/A			
		Indicated L	evel Before A	djustment (dB)	113.9	0.11			
		Indicated	Level After A	djustment (dB)	114.0	0.11			
5(a). Self-Generated Noise, Microphone Installed		Stability During	Continuous	Operation (dB)	16.7	0.09			
5(b). Self-Generated Noise, Electrical				A	8.8	0.09			
				z	12.0 18.2	0.09			
6. Acoustical Signal Test				125 Hz	Yes	0.42			
				1 kHz 8 kHz	Yes	0.42			
7. Electrical Frequency Weighting				A	Yes	0.09			
				C 7	Yes	0.09			
8. Frequency & Time Weightings 1kHz		8(a). Frequenc	y Weighting	C	Yes	0.09			
					Yes N/A	0.09			
		8(b). Tim	e Weighting	Slow	Yes	0.09			
9(a) Level Linearity 8kHz (Increasing)				Leq	Yes	0.09			
9(b). Level Linearity 8kHz (Decreasing)				Conforming	Yes	0.13			
10(a). Level Linearity Including the Level Range (Reference Signal)				Conforming	Yes	0.13			
11. Toneburst Response				Fast	Yes	0.13			
				Slow	Yes	0.13			
12. Peak C sound level				8 kHz	Yes	0.09			
12. Overlead indication				500 Hz	Yes	0.09			
				Latches	N/A	N/A			
14. High-level Stability				Conforming	Yes	0.09			
15(a). Octave Band Filter Relative Attenuation (≤2kHz)				Conforming	Yes	0.09			
15(b). Octave Band Filter Relative Attenuation (>2kHz)				Conforming	Yes	0.09			
16. Octave Band Filter Relative Attenuation at Midband Frequency				Conforming	Yes	0.09			
17(a) Optovo Dand Eilter Lavel Linearity 24 Ella (harras-lave)				24 EU-	Vaa	0.42			
17(a). Octave Band Filter Level Linearity 31.5Hz (Increasing) 17(b). Octave Band Filter Level Linearity 1kHz (Increasing)				1kHz	Yes	0.13			
17(c). Octave Band Filter Level Linearity 16kHz (Increasing)				16kHz	Yes	0.13			
18(a). Octave Band Filter Level Linearity 31.5Hz (Decreasing)				31.5Hz	Yes	0.13			
18(b). Octrave Band Filter Level Linearity 1kHz (Decreasing)				1kHz	Yes	0.13			
Toto, Octave Band Filter Level Linearity 16KHZ (Decreasing)				токни	res	0.13			
19(a). Octave Level Linearity Including the Level range (31.5Hz)				31.5Hz	Yes	0.13			
19(D). Octave Level Linearity Including the Level range (1kHz) 19(c). Octave Level Linearity Including the Level range (16kHz)				1kHz 16kHz	Yes Yes	0.13			
20(a). Octave Band Filter Lower Limit (Reference Range) 20(b). Octave Band Filter Lower Limit (Lowest Range)				Conforming Conforming	Yes Yes	0.09			
21(a). Third Octave Band Filter Relative Attenuation (≤31.5Hz) 21(b). Third Octave Band Filter Relative Attenuation (40Hz-315Hz)				Conforming Conforming	Yes Yes	0.09			
21(c). Third Octave Band Filter Relative Attenuation (400Hz-3.15kHz)				Conforming	Yes	0.09			
21(ɑ). Third Octave Band Filter Relative Attenuation (≥4kHz)				Conforming	Yes	0.09			

22. Third Octave Band Filter Relative Attenuation at Midband Frequency	Conforming	Yes	0.09
23(a). Third Octave Band Filter Level Linearity 31.5Hz (Increasing)	31.5Hz	Yes	0.13
23(b). Third Octave Band Filter Level Linearity 1kHz (Increasing)	1kHz	Yes	0.13
23(c). Third Octave Band Filter Level Linearity 16kHz (Increasing)	16kHz	Yes	0.13
24(a). Third Octave Band Filter Level Linearity 31.5Hz (Decreasing)	31.5Hz	Yes	0.13
24(b). Third Octave Band Filter Level Linearity 1kHz (Decreasing)	1kHz	Yes	0.13
24(c). Third Octave Band Filter Level Linearity 16kHz (Decreasing)	16kHz	Yes	0.13
25(a). Third Octave Level Linearity Including the Level range (31.5Hz)	31.5Hz	Yes	0.13
25(b). Third Octave Level Linearity Including the Level range (1kHz)	1kHz	Yes	0.13
25(c). Third Octave Level Linearity Including the Level range (16kHz)	16kHz	Yes	0.13
26(a). Octave Band Filter Lower Limit (Reference Range)	Conforming	Yes	0.09
26(b). Octave Band Filter Lower Limit (Lowest Range)	Conforming	Yes	0.09
SLM Overall Conforming		Y	es

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Checked



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Certificate of Calibration Sound Level Meter

 Calibration Date
 19/12/2019
 Job No
 RB759

 Client Name
 RENZO TONIN & ASSOCIATES (NSW) PTY LTD
 Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Instrument Make	NTI	Model	XL2-TA	Serial No	#A2A-13529-E0 #RTA07-021
Microphone Make	NTI	Model	MC230A	Serial No	#A1498
Preamplifier Make	NTI	Model	MA220	Serial No	#7064
Ext'n Cable Make	NTI	Model	N/A	Serial No	N/A
Accessories	Nil			Firmware	42

SLM Type 1 1 Filters Class

		-				
Environmental	Measured					
Conditions	Start	End				
Air Temp. (°C)	23.7	25.1				
Rel. Humidity (%)	57.4	55.1				
Air Pressure (kPa)	101.0	101.3				

Applicable Standards: Periodic tests were performed in accordance with procedures from IEC 61672-3 :2013 and IEC 61260-3 :2016

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: Accredited for compliance with ISO/IEC 17025 - Calibration. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full.

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 and IEC 61260-3:2016. 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 IEC 61672-2:2017 and IEC 61260-2:2017, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 and IEC 61260-1:2014, the sound level meter submitted for testing conforms to the class 1 specifications of IEC 61672-1:2013 and IEC 61260-1:2014.



Authorized Signatory:

Operator JA

Print Name: Renzo Tonin Date: 20 December 2019



NATacoustic Sound Level Meter Verification - Summary of Tests									
Calibration Date 19/12/2019 Job No Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010	RB759		Operator	JA					
1. Instrument Information & Reference Conditions Instrument Make NTI Model Microphone Make NTI Model Preamplifier Make NTI Model Ext'n Cable Make NTI Model Accessories Nil Model	XL2-TA MC230A MA220 N/A		Serial No Serial No Serial No Serial No Firmware	#A2A-13529-E0 #A1498 #7064 N/A 4.2	#RTA07-021				
Freq Weightings FLAT No A Yes C Time Weightings Fast Yes Slow Yes Impulse	Yes Yes	Z Yes]						
SLM Type 1 Filter Class 1									
Instruction Manual is Available						Yes			
2. Preliminary Inspection and Power Supply				Lo	gger Inspected	Yes			
				Calibration E	quipment Okay	Yes			
				Power Su Power S	upply Ok (Start) upply Ok (End)	Yes Yes			
3. Environmental Conditions					Meas	ured			
			Environme	ntal Conditions	Start	End			
			P	Air Temp. (°C)	23.7 57.4	25.1 55.1			
			Air	Pressure (kPa)	101.0	101.3			
				Conforming	Yes	Yes			
Test Description	I				Value / Conforming	Uncert (+/-)			
4(a). Initial Calibration			Calibratio	n Frequency Hz	1000 0	N/A			
		Indicated L	evel Before A	djustment (dB)	114.2	0.11			
		Indicated	Level After A	djustment (dB)	114.0	0.11			
		Stability During	Continuous	Operation (dB)	Yes	N/A			
5(a). Self-Generated Noise, Microphone Installed				A	16.6	0.09			
S(b). Sell-Generaled Noise, Electrical				ĉ	12.7	0.09			
				Z	18.8	0.09			
6. Acoustical Signal Test				125 Hz	Yes	0.42			
				1 kHz	Yes	0.42			
7. Electrical Frequency Weighting					Yes	0.09			
				С	Yes	0.09			
				Z	Yes	0.09			
8. Frequency & Time Weightings 1kHz		8(a). Frequenc	y Weighting	C	Yes	0.09			
				FLAT	N/A	0.09			
		8(b). Tim	e Weighting	Slow	Yes	0.09			
0(a) Lovel Linearity 8kHz (Increasing)				Leq	Yes	0.09			
9(b). Level Linearity 8kHz (Increasing) 9(b). Level Linearity 8kHz (Decreasing)				Conforming	Yes	0.13			
10(a). Level Linearity Including the Level Range (Reference Signal)				Conforming	Yes	0.13			
10(b). Level Linearity Including the Level range (5dB Above Under-range)				Conforming	Yes	0.13			
11. Loneburst Response				Fast	Yes	0.13			
				SEL/Leq	Yes	0.13			
12. Peak C sound level				8 kHz	Yes	0.09			
42. Overland indication				500 Hz	Yes	0.09			
13. Overroad indication				Latches	res N/A	0.09 N/A			
14. High-level Stability				Conforming	Yes	0.09			
15(a). Octave Band Filter Relative Attenuation (S2kHz)				Conforming	Yes	0.09			
16. Octave Band Filter Relative Attenuation at Midband Frequency				Conforming	Yes	0.09			
17(a). Octave Band Filter Level Linearity 31.5Hz (Increasing)				31.5Hz	Yes	0.13			
17(c). Octave Band Filter Level Linearity 16kHz (Increasing)				16kHz	Yes	0.13			
18(a). Octave Band Filter Level Linearity 31.5Hz (Decreasing)				31.5Hz	Yes	0.13			
18(b). Octrave Band Filter Level Linearity 1kHz (Decreasing) 18(c). Octave Band Filter Level Linearity 16kHz (Decreasing)				1kHz 16kHz	Yes Yes	0.13 0.13			
10(a) Optimized and Linearity Including the Level reprint (24 511-)				24 EU-	Vec	0.12			
19(a). Octave Level Linearity including the Level range (31.5Hz) 19(b). Octave Level Linearity including the Level range (1kHz)				31.5Hz 1kHz	res Yes	0.13			
19(c). Octave Level Linearity including the Level range (16kHz)				16kHz	Yes	0.13			
20(a). Octave Band Filter Lower Limit (Reference Range) 20(b). Octave Band Filter Lower Limit (Lowest Range)				Conforming Conforming	Yes Yes	0.09			
				Comfair 1	M	0.00			
21(a). Inird Octave Band Filter Relative Attenuation (≤31.5Hz) 21(b). Third Octave Band Filter Relative Attenuation (40Hz-315Hz)				Conforming	Yes	0.09			
21(c). Third Octave Band Filter Relative Attenuation (400Hz-3.15kHz)				Conforming	Yes	0.09			
21(d). Third Octave Band Filter Relative Attenuation (≥4kHz)				Conforming	Yes	0.09			

22. Third Octave Band Filter Relative Attenuation at Midband Frequency	Conforming	Yes	0.09
23(a). Third Octave Band Filter Level Linearity 31.5Hz (Increasing)	31.5Hz	Yes	0.13
23(b). Third Octave Band Filter Level Linearity 1kHz (Increasing)	1kHz	Yes	0.13
23(c). Third Octave Band Filter Level Linearity 16kHz (Increasing)	16kHz	Yes	0.13
24(a). Third Octave Band Filter Level Linearity 31.5Hz (Decreasing)	31.5Hz	Yes	0.13
24(b). Third Octave Band Filter Level Linearity 1kHz (Decreasing)	1kHz	Yes	0.13
24(c). Third Octave Band Filter Level Linearity 16kHz (Decreasing)	16kHz	Yes	0.13
25(a). Third Octave Level Linearity Including the Level range (31.5Hz)	31.5Hz	Yes	0.13
25(b). Third Octave Level Linearity Including the Level range (1kHz)	1kHz	Yes	0.13
25(c). Third Octave Level Linearity Including the Level range (16kHz)	16kHz	Yes	0.13
26(a). Octave Band Filter Lower Limit (Reference Range)	Conforming	Yes	0.09
26(b). Octave Band Filter Lower Limit (Lowest Range)	Conforming	Yes	0.09
SLM Overall Conforming		Y	es

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Certificate of Calibration Sound Level Meter

Calibration Date 20/12/2019 Job No RB759 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Operator AM

Instrument Make	NTI	Model	XL2-TA	Serial No	#A2A-13528-E0 #RTA07-022
Microphone Make	NTI	Model	MC230A	Serial No	#A14673
Preamplifier Make	NTI	Model	MA220	Serial No	#7164
Ext'n Cable Make	NTI	Model	N/A	Serial No	N/A
Accessories	Nil			Firmware	42

SLM Type Filters Class 1 1

Environmental	Measured			
Conditions	Start	End		
Air Temp. (°C)	25.1	25.4		
Rel. Humidity (%)	55.7	55.1		
Air Pressure (kPa)	101.4	101.5		

Applicable Standards: Periodic tests were performed in accordance with procedures from IEC 61672-3 :2013 and IEC 61260-3 :2016

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: Accredited for compliance with ISO/IEC 17025 - Calibration. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full.

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 and IEC 61260-3:2016. 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 IEC 61672-2:2017 and IEC 61260-2:2017, to demonstrate that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 and IEC 61260-1:2014, the sound level meter submitted for testing conforms to the class 1 specifications of IEC 61672-1:2013 and IEC 61260-1:2014.





NATacoustic Sound Level Meter Verification - Summary of Tests							
Calibration Date 20/12/2019 Job No Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010	RB759		Operator	AM			
Model XL2-TA Serial No #A2A-13528-E0 #RTA07-022 Instrument Make NTI Model MC230A Serial No #A14673 Preamplifier Make NTI Model MA220 Serial No #7164 Ext'n Cable Make NTI Model N/A Serial No #7164 Accessories Nii Firmware 4.2 Serial No #74							
Freq Weightings FLAT No A Yes C Time Weightings Fast Yes Slow Yes Impulse	Yes Yes	Z Yes]				
SLM Type 1 Filter Class 1							
Instruction Manual is Available						Yes	
2. Preliminary Inspection and Power Supply				Lo	gger Inspected	Yes	
				Calibration E	quipment Okay	Yes	
				Power Su Power S	upply Ok (Start) upply Ok (End)	Yes Yes	
3. Environmental Conditions					Meas	ured	
			Environmer	ntal Conditions	Start	End	
			P	Air Temp. (°C)	25.1 55.7	25.4	
			Air	Pressure (kPa)	101.4	101.5	
			7	Conforming	Yes	Yes	
Test Description	1				Value / Conforming	Uncert (+/-)	
			0	- Francisco - 17	4000.0	× 1/A	
4(a). Initial Calibration		Indicated I	Calibration	h Frequency Hz	1000.0	N/A 0.11	
		Indicated	Level After A	diustment (dB)	114.2	0.11	
		Stability During	Continuous	Operation (dB)	Yes	N/A	
5(a). Self-Generated Noise, Microphone Installed				Á	16.5	0.09	
5(b). Self-Generated Noise, Electrical				Α	9.1	0.09	
				C	12.4	0.09	
C. Accuration Simplificat				۲ 125 Hz	18.6	0.09	
IV. AUGUSTICAI SIYIIAI 1631				125 HZ 1 kHz	Yes	0.42	
				8 kHz	Yes	0.60	
7. Electrical Frequency Weighting				A	Yes	0.09	
				C	Yes	0.09	
O Francisco & Time Weightings (U.)		0(a) Francisco	Wainktinn	2	Yes	0.09	
8. Frequency & Time weightings TkHz		o(a). Frequenc	sy weighting	z	Yes	0.09	
				FLAT	N/A	0.09	
		8(b). Tim	e Weighting	Slow	Yes	0.09	
9(a) Level Linearity 8kHz (Increasing)				Leq	Yes	0.09	
9(b). Level Linearity 8kHz (Decreasing)				Conforming	Yes	0.13	
10(a). Level Linearity Including the Level Range (Reference Signal)				Conforming	Yes	0.13	
10(b). Level Linearity Including the Level range (5dB Above Under-range)				Conforming	Yes	0.13	
11. Toneburst Response				Fast	Yes	0.13	
				Slow SEL/Leg	Yes	0.13	
12. Peak C sound level				8 kHz	Yes	0.09	
				500 Hz	Yes	0.09	
13. Overload indication				Conforming	Yes	0.09	
14 High Javal Stability				Latches	N/A	N/A	
				contorning	162	0.03	
15(a). Octave Band Filter Relative Attenuation (≤2kHz) 15(b). Octave Band Filter Relative Attenuation (>2kHz)				Conforming Conforming	Yes Yes	0.09	
16. Octave Band Filter Relative Attenuation at Midband Frequency				Conforming	Yes	0.09	
17(a) Octave Band Filter Level Linearity 31 5Hz (Increasing)				31 547	Yes	0.13	
17(b). Octave Band Filter Level Linearity 1kHz (Increasing)				1kHz	Yes	0.13	
17(c). Octave Band Filter Level Linearity 16kHz (Increasing)				16kHz	Yes	0.13	
18(a). Octave Band Filter Level Linearity 31.5Hz (Decreasing)				31.5Hz	Yes	0.13	
18(b). Octrave Band Filter Level Linearity 1kHz (Decreasing) 18(c). Octave Band Filter Level Linearity 16kHz (Decreasing)				1kHz 16kHz	Yes Yes	0.13 0.13	
19(a). Octave Level Linearity Including the Level range (31,5Hz)				31.5Hz	Yes	0,13	
19(b). Octave Level Linearity Including the Level range (31.312)				1kHz	Yes	0.13	
19(c). Octave Level Linearity Including the Level range (16kHz)				16kHz	Yes	0.13	
20(a). Octave Band Filter Lower Limit (Reference Range) 20(b). Octave Band Filter Lower Limit (Lowest Rance)				Conforming Conformina	Yes Yes	0.09	
				0000		0.00	
21(a). Third Octave Band Filter Relative Attenuation (\$31.5Hz) 21(b). Third Octave Band Filter Relative Attenuation (40Hz-315Hz)				Conforming	res Yes	0.09	
21(c). Third Octave Band Filter Relative Attenuation (400Hz-3.15kHz)				Conforming	Yes	0.09	
21(d). Third Octave Band Filter Relative Attenuation (≥4kHz)				Conforming	Yes	0.09	
1							

22. Third Octave Band Filter Relative Attenuation at Midband Frequency	Conforming	Yes	0.09
23(a). Third Octave Band Filter Level Linearity 31.5Hz (Increasing)	31.5Hz	Yes	0.13
23(b). Third Octave Band Filter Level Linearity 1kHz (Increasing)	1kHz	Yes	0.13
23(c). Third Octave Band Filter Level Linearity 16kHz (Increasing)	16kHz	Yes	0.13
24(a). Third Octave Band Filter Level Linearity 31.5Hz (Decreasing)	31.5Hz	Yes	0.13
24(b). Third Octave Band Filter Level Linearity 1kHz (Decreasing)	1kHz	Yes	0.13
24(c). Third Octave Band Filter Level Linearity 16kHz (Decreasing)	16kHz	Yes	0.13
25(a). Third Octave Level Linearity Including the Level range (31.5Hz)	31.5Hz	Yes	0.13
25(b). Third Octave Level Linearity Including the Level range (1kHz)	1kHz	Yes	0.13
25(c). Third Octave Level Linearity Including the Level range (16kHz)	16kHz	Yes	0.13
26(a). Octave Band Filter Lower Limit (Reference Range)	Conforming	Yes	0.09
26(b). Octave Band Filter Lower Limit (Lowest Range)	Conforming	Yes	0.09
SLM Overall Conforming		Yes	

Accredited for compliance with ISO/IEC 17025 - Calibration. The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. This document shall not be reproduced, except in full. Periodic tests were performed in accordance with procedures from IEC 61672-3 :2013 and IEC 61260-3 :2016.

Checked



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

Sound Level Meter IEC 61672-3.2013

Calibration Certificate

Calibration Number C21038

	ODD (
Chent Details	CDR (Contractors	
	Level	4, 201 Elizabeth Street	
	Sydne	v NSW 2000	
	e) and	J 113 H 2000	
Equipment Tested/ Model Number :	Rion 1	NL-20	
Instrument Serial Number :	00143	337	
Microphone Serial Number :	94478		
Dra amplifian Social Number -	10004		
r re-ampliner serial Number :	10074		
Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditi	ions
Ambient Temperature : 23°C		Ambient Temperature :	22.6°C
Relative Humidity · 52.5%		Relative Humidity -	50.2%
Denometrie Brasquire e 100 79LDe		Devemetrie Dreamy	100.77LDa
barometric Pressure: 100.76KPa		barometric r ressure :	100.77KPa
Calibration Technician : Jeff Yu	v.	Secondary Check: Max Moore	
Calibration Date: 29 Jan 2021		Report Issue Date : 29 Jan 2021	
Approved Signatory :	1EL	Olims .	Ken Williams
Clause and Characteristic Tested R	esult	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting Pa		17: Level linearity incl. the level range con	ntrol Pass
13: Electrical Sig. tests of frequency weightings Pa		18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz Pa		19: C Weighted Peak Sound Level	N/A
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 2 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

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

Least Uncertainties of Measurement -							
Acoustic Tests Environmental Conditions							
125Hz	$\pm 0.12 dB$	Temperature	± 0.2 °C				
1kH=	$\pm 0.11 dB$	Relative Humidity	$\pm 2.4\%$				
8kH=	±0.13dB	Barometric Pressure	$\pm 0.015 kPa$				
Electrical Tests	$\pm 0.10 dB$						

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





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

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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@natacoustic.com.au website: www.natacoustic.com.au A division of Renzo Tonin & Associates (NSW) Pty Ltd ABN 29 117 462 861

Certificate of Calibration **Accelerometer / Vibration Monitor**

Calibration Date 25/02/2021 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Manufacturer Sigicom Instrument Model C12

Serial No #70190

Operator AH



Reference Standards:

International Standard ISO8041:2005 Human response to vibration -Measuring instrumentation International Standard ISO 16063-1:1998 Methods for the calibration of vibration and shock transducers - Part 1: Basic concepts International Standard ISO 16063-21:2003 Methods for the calibration of vibration and shock transducers - Part 21: Vibration calibration by comparison to a reference transducer

Laboratory Equipment : Electrodynamic shaker - Ground Zero GZNW 18XSPL Power Amplifier – Behringer Model NU3000DSP Signal generator DT 9837A 4-channel data acquisition card SpectraPLUS software

Reference accelerometer

Traceability:

The results of the tests and measurements included in this document are traceable via the test methods described in the applicable work instruction which references the listed international standards. And by the use of the above lab equipment, which has been calibrated where required using reference equipment calibrated by NATA accredited calibration facilities. This document shall not be reproduced, except in full.

Scope

This certificate is issued on the basis that the instrument complies with the manufacturer's specification.

Calibration Notes:

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Calibration Checked and Approved:

UUN-



Date: 8/03/2021



Template: WiTC-101a Minimate Calibration Template (r0)

1. Calibration Information							
Calibration Date	25/02/2021	Job No	RB859	Operator AH			
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY	/ LTD					
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILL	-S 2010					
I(a). Reference Instrument Information							

Accelerometer Info 61C13 #2	1124	
Sensitivity (mV/EU)	105.4	
Engineering units (EU)		
Date of Last Calibration	25/02/2019	

1(b). Test Instrument Information

Manufacturer	Sigicom
Model	C12
Serial Number	#70190

Test Settings						
test no	Test Accelerometer Axis					
1	V-Axis					
2	T-Axis					
3	L-Axis					

Colour Legend				
Enter Value	110			
Operator Action	110			
Difference	1.0			
Tolerance	+/-1			
Select Toggle	Val			
Error/Outside Tolerance	2.0			
Informative	110			

1(c). Preliminary Inspection

Laboratory Calibration Equipment Ok	Yes
Test Instrument Inspected	Yes

1(d). Calibration Notes

Notes for Certificate

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Other Notes

The reference accelerometer was mounted on the BK4294 field calibrator and the output was connected to the DAQ. The 0-Peak vibration level was 1.429g = 14.02 m/s/s. The rms acceleration level was 9.91 m/s/s. This differs from the reference rms vibration level of 10.0m/s/s by 0.08 dB.

2. Comparison Tests										
Pomparison Tast 1, V Avis										
Test Frequency	Test Frequency Amplifier Volume Reference Accelerance Accelerance Reference Accelerance Reference Accelerance Reference Refere									
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.226	0.080	-0.1%	Pass	22.05	22.55	-0.50	0.19	Pass
8.0	4	0.400	0.141	0.3%	Pass	39.03	40.20	-1.17	0.26	Pass
31.5	3	0.358	0.127	-0.3%	Pass	8.87	8.20	0.67	0.68	Pass
				N/A	N/A	N/A		N/A	N/A	N/A
				Comparison 1	fest 1 - T-Axis					
Test Frequency	Amplifier Volume		Referenc	e Accelerometer Result:	3		Minimate Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.180	0.064	-0.6%	Pass	17.56	20.50	-2.94	1.34	Pass
8.0	4	0.320	0.113	0.1%	Pass	31.23	36.70	-5.47	1.40	Pass
31.5	2	0.242	0.086	-0.5%	Pass	6.00	5.95	0.05	0.07	Pass
31.5	3	0.399	0.141	0.0%	Pass	9.89	9.65	0.24	0.21	Pass
				·		·		•		
				Comparison 1	fest 1 - L-Axis					
Test Frequency	Amplifier Volume		Reference	e Accelerometer Result	3		Minimate Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.245	0.087	-0.4%	Pass	23.91	24.70	-0.79	0.28	Pass
8.0	4	0.422	0.149	0.1%	Pass	41.18	39.20	1.98	0.43	Pass
				N/A	N/A	N/A		N/A	N/A	N/A
				N/A	N/A	N/A		N/A	N/A	N/A



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Ph: (02) 8218 0570 email: service@natacoustic.com.au website: www.natacoustic.com.au A division of Renzo Tonin & Associates (NSW) Pty Ltd ABN 29 117 462 861

Certificate of Calibration **Accelerometer / Vibration Monitor**

Calibration Date 25/02/2021 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Manufacturer Sigicom Instrument Model C12

Serial No #70250

Operator AH

Applicable Work Instruction: WiTC-101 Minimate Calibration

Reference Standards:

International Standard ISO8041:2005 Human response to vibration -Measuring instrumentation International Standard ISO 16063-1:1998 Methods for the calibration of vibration and shock transducers - Part 1: Basic concepts International Standard ISO 16063-21:2003 Methods for the calibration of vibration and shock transducers - Part 21: Vibration calibration by comparison to a reference transducer

Laboratory Equipment : Electrodynamic shaker - Ground Zero GZNW 18XSPL Power Amplifier – Behringer Model NU3000DSP Signal generator DT 9837A 4-channel data acquisition card SpectraPLUS software

Reference accelerometer

Traceability:

The results of the tests and measurements included in this document are traceable via the test methods described in the applicable work instruction which references the listed international standards. And by the use of the above lab equipment, which has been calibrated where required using reference equipment calibrated by NATA accredited calibration facilities. This document shall not be reproduced, except in full.

Scope

This certificate is issued on the basis that the instrument complies with the manufacturer's specification.

Calibration Notes:

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Calibration Checked and Approved:

veit



Date: 8/03/2021

Template: WiTC-101a Minimate Calibration Template (r0)



	1. Calib	oratio	n Information		
Calibration Date	25/02/2021	Job No	RB859	Operator	АН
Client Name	RENZO TONIN & ASSOCIATES (NSW) PT	Y LTD			
Client Address	EVEL 1 418A ELIZABETH ST SURRY HILLS 2010				
(a). Reference Instrument Information					

Sensitivity (mV/EU)	105.4
Engineering units (EU)	
Date of Last Calibration	25/02/2019

1(b). Test Instrument Information

Manufacturer	Sigicom
Model	C12
Serial Number	#70250

Accelerometer Info 61C13 #21124

	Test Settings
test no	Test Accelerometer Axis
1	V-Axis
2	T-Axis
3	L-Axis

Colour Legend	
Enter Value	110
Operator Action	110
Difference	1.0
Tolerance	+/-1
Select Toggle	Val
Error/Outside Tolerance	2.0
Informative	110

1(c). Preliminary Inspection

Laboratory Calibration Equipment Ok	Yes
Test Instrument Inspected	Yes

1(d). Calibration Notes

Notes for Certificate

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Other Notes

The reference accelerometer was mounted on the BK4294 field calibrator and the output was connected to the DAQ. The 0-Peak vibration level was 1.429g = 14.02 m/s/s. The rms acceleration level was 9.91 m/s/s. This differs from the reference rms vibration level of 10.0m/s/s by 0.08 dB.

2. Comparison Tests										
	Comparison Test 1 - V-Avis									
Test Frequency	Test Frequency Amplifier Volume Reference Accelerometer Results Difference Difference									
(Hz)	setting	PK to PK (G) (3SF)	PK to PK (G) (3SF) RMS (G) (3SF) Sine Wave Quality Sine Wave Quality 0-Pk (mm/s)					(mm/s)	(dB)	Pass/Fail
8.0	3	0.236	0.083	0.5%	Pass	23.03	22.30	0.73	0.28	Pass
8.0	4	0.412	0.146	-0.2%	Pass	40.20	39.60	0.60	0.13	Pass
				N/A	N/A	N/A		N/A	N/A	N/A
				N/A	N/A	N/A		N/A	N/A	N/A
				Comparison 1	est 1 - T-Axis					
Test Frequency	Amplifier Volume		Referenc	e Accelerometer Result:	3		Minimate Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.180	0.064	-0.6%	Pass	17.56	17.40	0.16	0.08	Pass
8.0	4	0.332	0.117	0.3%	Pass	32.40	30.00	2.40	0.67	Pass
31.5	2	0.235	0.083	0.1%	Pass	5.82	5.65	0.17	0.26	Pass
31.5	3	0.392	0.139	-0.3%	Pass	9.71	9.40	0.31	0.29	Pass
				Comparison 1	fest 1 - L-Axis					
Test Frequency	Amplifier Volume		Reference	e Accelerometer Result:	3		Minimate Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.237	0.084	-0.2%	Pass	23.13	22.70	0.43	0.16	Pass
8.0	4	0.426	0.151	-0.3%	Pass	41.57	42.20	-0.63	0.13	Pass
				N/A	N/A	N/A		N/A	N/A	N/A
				N/A	N/A	N/A		N/A	N/A	N/A



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Certificate of Calibration Accelerometer / Vibration Monitor

Test Item

Calibration Date 1/12/2020 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010 **Operator** Mohammed (Intern)

Manufacturer Sigicom Instrument Model Infra c22 Serial No #61860

Applicable Work Instruction:

WiTC-100 Sigicom Calibration

Reference Standards:

International Standard ISO8041:2005 Human response to vibration -Measuring instrumentation

International Standard ISO 16063-1:1998 Methods for the calibration of vibration and shock transducers - Part 1: Basic concepts International Standard ISO 16063-21:2003 Methods for the calibration of vibration and shock transducers - Part 21: Vibration calibration by comparison to a reference transducer

Laboratory Equipment :

Electrodynamic shaker - Ground Zero GZNW 18XSPL Power Amplifier – Behringer Model NU3000DSP Signal generator DT 9837A 4-channel data acquisition card SpectraPLUS software Reference accelerometer

Traceability:

The results of the tests and measurements included in this document are traceable via the test methods described in the applicable work instruction which references the listed international standards.

And by the use of the above lab equipment, which has been calibrated where required using reference equipment calibrated by NATA accredited calibration facilities.

This document shall not be reproduced, except in full.

Scope:

This certificate is issued on the basis that the instrument complies with the manufacturer's specification.

Calibration Notes:

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Calibration Checked and Approved:

Print Name: Conrad Weber

Date: 16/12/2020

Template: WiTC-100a Sigicom Calibration Template (r3)





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Certificate of Calibration **Accelerometer / Vibration Monitor**

Calibration Date 25/02/2021 Client Name RENZO TONIN & ASSOCIATES (NSW) PTY LTD Client Address LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010

Test Item

Manufacturer Sigicom Instrument Model C12

Serial No #70130

Operator AH



Reference Standards:

International Standard ISO8041:2005 Human response to vibration -Measuring instrumentation International Standard ISO 16063-1:1998 Methods for the calibration of vibration and shock transducers - Part 1: Basic concepts International Standard ISO 16063-21:2003 Methods for the calibration of vibration and shock transducers - Part 21: Vibration calibration by comparison to a reference transducer

Laboratory Equipment : Electrodynamic shaker - Ground Zero GZNW 18XSPL Power Amplifier – Behringer Model NU3000DSP Signal generator DT 9837A 4-channel data acquisition card SpectraPLUS software Reference accelerometer

Traceability:

The results of the tests and measurements included in this document are traceable via the test methods described in the applicable work instruction which references the listed international standards. And by the use of the above lab equipment, which has been calibrated where required using reference equipment calibrated by NATA accredited calibration facilities. This document shall not be reproduced, except in full.

Scope

This certificate is issued on the basis that the instrument complies with the manufacturer's specification.

Calibration Notes:

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Calibration Checked and Approved:

NUNA

Print Name: Ariel Michael

Date: 5/08/2021



Template: WiTC-101a Minimate Calibration Template (r0)

	1. Calib	oration	n Information	
Calibration Date	25/02/2021	Job No	RB894	Operator AH
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY	/ LTD		
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILL	-S 2010		
1(a). Reference In	strument Information			

Accelerometer Info 61C13 #2	1124	
Sensitivity (mV/EU)	105.4	
Engineering units (EU)		
Date of Last Calibration	31/03/2021	

1(b). Test Instrument Information

Manufacturer	Sigicom
Model	C12
Serial Number	#70130

	Test Settings
test no	Test Accelerometer Axis
1	V-Axis
2	T-Axis
3	L-Axis

110 110
110
-
1.0
+/-1
Val
2.0
110

1(c). Preliminary Inspection

Yes	Laboratory Calibration Equipment Ok
Yes	Test Instrument Inspected

1(d). Calibration Notes

Notes for Certificate

Sensitivity of reference accelerometer and measurement chain was verified using a BK 4294 field accelerometer. The measured rms vibration level was within 0.1 dB of the reference level at 1000 rad/s.

Other Notes

The reference accelerometer was mounted on the BK4294 field calibrator and the output was connected to the DAQ. The 0-Peak vibration level was 1.429g = 14.02 m/s/s. The rms acceleration level was 9.91 m/s/s. This differs from the reference rms vibration level of 10.0m/s/s by 0.08 dB.

2. Comparison Tests										
				Comparison	Fest 1 - V-Axis					
Test Frequency	Amplifier Volume		Referenc	e Accelerometer Result	S S S S S S S S S S S S S S S S S S S		Sigicom Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.236	0.083	0.5%	Pass	23.03	22.30	0.73	0.28	Pass
8.0	4	0.412	0.146	-0.2%	Pass	40.20	39.60	0.60	0.13	Pass
31.5	3			#N/A	#N/A	0.00		0.00	0.00	#N/A
31.5	4			#N/A	#N/A	0.00		0.00	0.00	#N/A
Comparison Test 2 - T-Axis										
Test Frequency	Amplifier Volume		Reference	e Accelerometer Result:	8		Sigicom Results	Difference	Difference	
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.180	0.064	-0.6%	Pass	17.56	17.40	0.16	0.08	Pass
8.0	4	0.332	0.117	0.3%	Pass	32.40	30.00	2.40	0.67	Pass
31.5	2	0.235	0.083	0.1%	Pass	5.82	5.65	0.17	0.26	Pass
31.5	3	0.392	0.139	-0.3%	Pass	9.71	9.40	0.31	0.29	Pass
Comparison Test 3 - L-Axis										
Test Frequency	Amplifier Volume	Reference Accelerometer Results				Sigicom Results	Difference	Difference		
(Hz)	setting	PK to PK (G) (3SF)	RMS (G) (3SF)	Sine Wave Quality	Sine Wave Quality	0-Pk (mm/s)	Zero to PK (mm/s) 3SF	(mm/s)	(dB)	Pass/Fail
8.0	3	0.237	0.084	-0.2%	Pass	23.13	22.70	0.43	0.16	Pass
8.0	4	0.426	0.151	-0.3%	Pass	41.57	42.20	-0.63	0.13	Pass
31.5	2			#N/A	#N/A	0.00		0.00	0.00	#N/A
31.5	3			#N/A	#N/A	0.00		0.00	0.00	#N/A



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 Calibrator IEC 60942-2017

Calibration Certificate

Calibration Number C21042

	Cli	ient Details	CPB Contra	ictors		
			Level 4, 20	I Elizabeth Street		
			Sydney NS	W 2000		
Equipm	ent Tested/ Mode	l Number :	Pulsar Mod	el 106		
	Instrument Seria	l Number :	93277			
		Å 4 I	ante Can Ital			
	A see to form 4. TTD	Atmosph	ieric Conditi	ons		
	Ambient l'en	iperature :	22.9°C			
	Relative	Humidity :	50.7%			
	Barometric	Pressure :	100.74kPa			
Calibration Techni	cian : Jeff Yu		Sec	ondary Check:	Max Moore	
Calibration	Date: 29 Jan 202	21	Rep	ort Issue Date :	29 Jan 202	1
		~ .	-20:			
	Approved	Signatory :	18 Alan	ns		Ken Williams
Characteristic Teste	d	Re	sult			
Generated Sound Press	ure Level	Pa	755			
Frequency Generated		Pa	255			
Total Distortion		Pa	755			
	Nominal Level	Nominal 1	Frequency	Measured Le	vel Meas	ured Frequency
	94	10	000	94.01		1000.30
The sound calibrator has b the sound pressure	een shown to conform t level(s) and frequency(o the class 2 req ies) stated, for t	uirements for pe he environmenta	riodic testing, describe I conditions under wh	ed in Annex B of ich the tests were	IEC 60942:2017 for performed
		Least Uncerta	inties of Measur	ement -		
Specific Tests	0.1.(10)		Environmenta	l Conditions		
Generated SPL	$\pm 0.14dB$		Tempera	ture	±0.2°C	
Frequency	±0.09%		Relative	Humidity	+2.4%	
Distortion	Baromet	ric Pressure	±0.013kPa			

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.



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.

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PAGE 1 OF 1



Yeo-Kal Electronics Pty Ltd 18/26 Wattle Road, Brookvale NSW Australia Telephone +61 2 9939 2616 Fax +61 2 9905 1100

CERTIFICATE OF CALIBRATION

Model: 611

Make: Yeo-Kal Electronics Pty Ltd.

Serial Number 426 Date/s of Calibration 28/01/21

Standards:

Temperature: Mercury in glass thermometer. Certified thermometer R246

Salinity: 35.00ppt seawater standardised with a model 610MK1V Salinometer against IAPSO Standard Seawater P101 K15= 1.00002 (Chlorinity 19.377). The conversion between conductivity and salinity is performed using the Practical Salinity Scale. UNESCO Technical Papers in marine Science 1983.

Conductivity: 1413us/cm. The conversion of low conductivity raw data to conductivity referenced to 25Deg C is performed using constants derived from the HANDBOOK OF CHEMISTRY AND PHYSICS 1963, Chemical Rubber Publishing Company, Page 2691, Conductivity of Standard Solutions using KCL, 0.001M Solution.

Dissolved Oxygen: 100% saturated distilled water. The YK611 measures dissolved oxygen as % saturation and then it automatically converts the reading to milligrams per litre. This conversion is calculated from the dissolved oxygen solubility tables found in International Oceanographic Tables vol.2. National Institute of Oceanography 1972. Zero oxygen achieved by purging probe with nitrogen/ or zero dummy plug.

Turbidity: Formazin 200ntu prepared as per Standard Methods. Ontu prepared using distilled water.

pH: 4 and 10 buffers prepared as per Standard Methods. Ref: Durst, R.A. 1975 Standard Reference Materials: Standardization of pH Measurements NBS Spec Publ.260-53, National Bur. Standards, Washington D.C.

ORP: Buffers 7 and 10 with quinhydrone prepared as per standard methods and American Society for Testing and Materials. The redox potential conforms to International Standard IEC 746-5 "Expressions of Performance of Electrochemical Analyzers, Part 5: Oxidation-Reduction potential". In accordance with this standard, the Redox potential is referred to the standard ("normal") hydrogen electrode (NHE) and is expressed in mV.

Depth: Calibrated using a Druck DPI 610 pressure calibrator / 2.0 meter water column.

Model 611- Serial 426

At the time of calibration the sensors were calibrated to the following accuracy.

Temperature: ⁺/₋ 0.05 ° C

Salinity: +/-0.1ppt

Conductivity: +/- 5us/cm

pH: +/- 0.03

ORP: +/- 3mv

Dissolved Oxygen: Normally (*/. 0.5%).

Turbidity: +/- 0.3ntu for range of 0-200ntu.

Yeo-Kal Reference: RFS 2680

Calibrated by: G. Yeomans

SERIAL NUMBER: CAL DATE/TIME	426 SENSOR	OFFSET	SLOPE	
28/01/21 10:18 28/01/21 10:29 28/01/21 10:22 28/01/21 10:38 28/01/21 10:32 28/01/21 10:35 28/01/21 10:40	TEMPERATURE SAL/COND MSCM COND USCM DISSOLVED OXYGEN PH ORP TURBIDITY	2397.738 -1.000 9.735 -16.000 3534.632 437.000 -288.000	$\begin{array}{r} 115.303\\ 20470.480\\ 4.868\\ 5.794\\ -511.943\\ 2.305\\ 3.885\end{array}$	5
E – Water Management Protocol



WATER MANAGEMENT PROCEDURE

RESPONSIBILITY

WATER REUSE AND DISCHARGE MANAGEMENT



NOTES

Safety Requirements

- Always wear appropriate PPE (refer to Work Pack and SWMS)
- Avoid eye and skin contact with material sampled, flocculants, or products used to adjust pH. The first aid shed contains eye wash equipment if it is required.
- DO NOT breathe gases or aerosols formed from sampled material or associated preservatives in sample bottles.
- Maintain high standards of personal hygiene when sampling, DO NOT eat or smoke when sampling and ALWAYS wash hands ٠ following sampling.

Training

All personnel must receive site inductions and on-going Toolbox Talks which will include requirements of Water Management on site.

Only authorised persons to issue the permit to dewater and undertake site testing/sampling.

Monitoring

- Undertake water quality monitoring and visual inspection as per this procedures discharge requirements.
- Regular inspection of controls and discharge points are required prior to and during discharge.
- Where observations or conditions change, stop the discharge and contact Environment Team immediately.

Recording

- Records of water quality analysis on permits.
- Records of water reuse.
- Records of inspections including site inspections, on going monitoring of discharge and site diaries. •
- Records of toolbox talks.

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If there is capacity in the 5000L reuse tank (specified in the diagram on page 2), water must be pumped into the reuse tank before discharged to stormwater.

Water from the 5000L reuse tank can be reused for dust suppression, site amenities or other purposes.



DISCHARGE MANAGEMENT PROTOCOL

	Management Workflow	Analytes & Period	Operation & Trigger Guidelines	Management Actions
Stage 0 - Verification	WTP operation and batching No Sample batched water Is sample within criteria? Samples returned within criteria Yes	1. Real Time (daily): i. Turbidity ii. pH iii.Oil & Grease 2. Per Batch i. Full Suite at NATA accredited lab	 Normal operation of water treatment plant (WTP) in the commissioning phase with batching of waste water 	 Standard WTP operation Water treatment using a batching process without discharge Continuous sampling of discharge After five (5) consecutive sampling events without an exceedance of the target criteria adopt Stage 1 Protocols
Stage 1 - Standard Operations	Continuous WTP Operation and Discharge Adopt Stage 1 Management Protocols Yes	1. Real Time (daily): i. Turbidity ii. pH iii. Oil & Grease 2. Per Month ¹ i. Full Suite at NATA accredited lab	 Normal operation of WTP with continuous discharge of treated water 	 Standard WTP operation
Stage 2 · Exceedance	No exceedance occurred? Adopt Stage 2 Management Protocols	As per Stage 1	 50th percentile discharge limit exceeded across three (3) consecutive sampling events 100th percentile discharge limit exceeded across one (1) sampling event 	 Notify WTP operator of trigger Investigate the cause of the exceedance and examine the WTP processes immediately Implement new controls to address any issues identified Undertake sample of the exceeded parameter at the next available discharge
Stage 3 - Stop Work	Yes A been exceeded? No Continue with appropriate degree of treatment		 50th percentile discharge limit exceeded across five (5) consecutive sampling events 100th percentile discharge limit exceeded across two (2) consecutive sampling events 	 Implement Stage 1 & 2 management protocols Inform Client and Environmental Representative Implement batch verification with 2x samples of the exceeded parameter to meet the criteria prior to discharge
Note: 1.	Water samples will be collected monthly, where treated water is available. In the event RESPONSIBILITY	that insufficient treated water is available	le for collection, a water sample is to be collected upon co GRAB SAMPLE PROCESS	mmencement of the next available discharge event.
Environmental Coordinator/ authorised delegate Monthly (or on the available discharge) sampling must be undertaken in accordance with the Discharge Management Protocol.				
Water samples to be taken by environmental team or authorised delegate and sent to a NATA accredited laboratory for testing. The sample is to be taken at the point of the sample valve.				
	Management actions determined by the Discharge Management Protocol Stages depending on the water results			

WATER QUALITY CRITERIA FOR DISCHARGE AND LABORATORY SAMPING

Parameter	Percentile Concentration Limit	Sample Method & Frequency	Units	Discharge Criteria
рН	100	Probe/ grab sample Prior to discharge	рН	6.5-8.5
Total Suspended Solids (TSS)*	100	Probe/ grab sample Prior to discharge	mg/L	<50
Oil and Grease	100	Visual Prior to discharge	None visual	None visual
Copper	50	Grab Sample Monthly	mg/L	0.0013
Copper	100	Grab Sample Monthly	mg/L	0.0048
Zinc	50	Grab Sample Monthly	mg/L	0.015
Zinc	100	Grab Sample Monthly	mg/L	0.043

Note: an equivalent NTU value of 50 will be used instead of TSS for site testing as per correlation.





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APPROVAL CITY & SOUTHWEST ACOUSTICS ADVISOR

Review of	Quarterly Environment Construction Monitoring Report Q3 (PS-ISD)	Document reference:	Quarterly Environment Construction Monitoring Report Q3 – July to September 2021
Prepared	Carl Fokkema		Pitt Street Integrated Station
by:	Alternate Acoustics Advisor		Development Prepared by CPB.
Date of	10 December 2021		Project Number: N01070
issue:			Document number: SMCSWSPS-CPB-
			STA-EM-REP-00007
			TeamBinder: SMCSWSPU-CPB-SPS-
			EM-REP-010151
			Revision date: 10/12/2021
			Revision: C

As approved Alternate Acoustics Advisor for the Sydney Metro City & Southwest project, I have reviewed and provided comment on the Quarterly Environmental Construction Monitoring Report (CMR) for the Pitt Street Integrated Station Development, as required under A27 (d) of the project approval conditions (SSI 15-7400).

I reviewed and commented on previous revisions (A and B) of the CMR Q3. This revision C includes minor amendments that required updating or were of an administrative or minor nature and are consistent with the terms of approval and the document approved by the Secretary.

I am satisfied that such amendments are necessary, approve revision C of the CMR Q3 (dated 10 December 2021), and consider that the document is appropriate for submission to the Secretary for information.

Carl Fokkema, City & Southwest Alternate Acoustics Advisor