HSE

Southwest Metro Station Upgrade Works Package 4:

Marrickville, Canterbury & Lakemba Stations

HSEJV Construction Monitoring Report: March 2023 to September 2023



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NSW GOVERNMENT | sydney METRO

Construction Consultative Committee

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Revision History

REV	DATE	DESCRIPTION	REVIEW	APPROVED
0	25/09/2023	Original Content Development	Jake Iskenderian	Andrew Lynam
A	18/10/2023	Update following SM and ER comments	Jake Iskenderian	Andrew Lynam
B	26/10/2023	Update following SM and ER comments	Jake Iskenderian	Andrew Lynam

Terms and Definitions

TERMS	EXPLANATION
AMMs	Additional Mitigation Measures
AMMM	Additional Mitigation Measures Matrices
CEMP	Construction Environmental Management Plan
CoA	Condition of Approval
CNVS	Sydney Metro Construction Noise and Vibration Strategy (2016)
CNVMP	Construction Noise and Vibration Management Plan
CoCB	City of Canterbury Bankstown
CSSI	Critical State Significant Infrastructure
EIS	Environmental Impact Statement
DPE	Department of Planning and Environment
EPA	NSW Environment Protection Authority
ER	Environmental Representative
HSEJV	Haslin Construction & Stephen Edwards Joint Venture
IWC	Inner West Council
MNR	Monitoring
NATA	National Association of Testing Authorities
NML	Noise Management Level
NVMP	Noise and Vibration Management Plan
REMM	Revised Environmental Mitigation Measure
SWMP	Soil and Water Management Plan
VML	Vibration Management Level

1. Introduction

1.1. Project Summary

The Sydney Metro City & Southwest project includes a new 30km metro line extending metro rail from the end of the Metro Northwest Line at Chatswood, under Sydney Harbour, through new CBD stations and southwest to Bankstown. It is due to open in 2024 with the ultimate capacity to run a metro train every two minutes each way through the centre of Sydney. Sydney Metro City & Southwest comprises two core components – the Chatswood to Sydenham project, and the Sydenham to Bankstown upgrade. This document refers to the Sydenham to Bankstown Section, Southwest Metro Station Upgrade Works Package 4. In particular to the Station Upgrades at Marrickville, Canterbury, and Lakemba, refer to Figure 1 below.

Figure 1: Location of the Project

1.2. Planning Approval Requirements

The Sydney Metro Authority received planning approval to construct the project from the Department of Planning and Environment (DPE). The Conditions of Approval (CoA) Critical State Significant Infrastructure (CSSI) 8256 granted 12 December 2018 cover the works from Marrickville to Bankstown.

A Construction Environmental Management Plan (CEMP) and sub-plans were developed for the project to address all environmental aspects, including construction monitoring. Approval

of the plans enabled commencement of Construction on 20 March 2021. Construction monitoring requirements are detailed in the CEMP, the Soil and Water Management Sub-Plan (SWMP) (CoA C3(b) and the Construction Noise and Vibration Management Plan (CNVMP) (CoA C3(a). These plans can be accessed at the HSEJV website: https://hsejv.com.au/home.

Environmental monitoring was undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and implementation of the CEMP and supplementary plans, and to address approval requirements.

The objectives for this report are to provide construction monitoring results for the 6 months of work on the HSEJV Project as required in the Construction Monitoring Program, from the start of March 2023 to the end of September 2023.

Due to the remaining low risk scope and sites being near practical completion, no further monitoring will be triggered, therefore, this will be the final construction monitoring report.

1.3. Submission Requirements

This Construction Monitoring Report will be submitted to the Planning Secretary (DPE), and relevant regulatory agencies, for information in accordance with Condition C14 of CSSI 8256 every six months as outlined in the Construction Monitoring Program. The CMR has been reviewed by the DPE ER prior to finalisation and submission”

2. Details of Pre-Construction Monitoring

Works commenced in February 2021 with non-intrusive survey works, dilapidation reports and site familiarisation.

The Southwest Metro Early Works (SMEW) project conducted water quality monitoring at the Cooks River, adjacent to the rail corridor for the purpose of establishing baseline water quality data from May 2019 to September 2020 at quarterly intervals and also during a number of rainfall events. These monitoring locations (on Broughton Street, Canterbury) are located approximately 150m from the nearest works at Canterbury Station. It is noted that the data captured as part of the monitoring indicates that the water quality within the Cooks River at the monitoring location exceeds several of the ANZECC/ANZG criteria regularly including pH and turbidity. Due to fluctuating results, they offer little in terms of interpretation or predictable trends. No further baseline water quality monitoring is proposed by the Project. HSEJV did not conduct any baseline water quality monitoring further to what was provided by the SMEW project.

The NSW Water Quality and River Flow Objectives (refer Tables below) provide water quality objectives for the Cooks River and Georges River catchments, for the protection of the following within waterways affected by urban development, or estuaries:

- Aquatic ecosystems
- Visual amenity.

As per the Sydney Metro – Water Discharge or Reuse Procedure and HSEJV Soil and Water Management Plan, pH, total suspended solids (TSS)/ turbidity (NTU) and oil and grease are considered the main potential contamination for surface water.

Table 1-2NSW water quality objectives

Water quality objective	Indicators	Associated trigger values or criteria	Catchments to which it applies
Aquatic ecosystems			
Maintaining or improving the ecological condition of waterbodies and their riparian zones over the long term	Total phosphorus	Lowland rivers: 0.025 mg/L for rivers flowing to the coast Estuaries: 0.03 mg/L	Cooks River Georges River (Salt Pan Creek)
	Total nitrogen	Lowland rivers: 0.350 mg/L for rivers flowing to the coast Estuaries: 0.300 mg/L	
	Chlorophyll-a	Lowland rivers: 0.005 mg/L. Estuaries: 0.004 mg/L.	
	Turbidity	Lowland rivers: 6–50 NTU Estuaries: 0.5–10 NTU	
	Salinity (electrical conductivity)	Lowland rivers: 125–2200 µS/cm	
	Dissolved oxygen	Lowland rivers: 85–110 % Estuaries: 80–110 %	
	pH	Lowland rivers: 6.5–8.5 Estuaries: 7.0–8.5	

Water quality objective	Indicators	Associated trigger values or criteria	Catchments to which it applies
Visual amenity			
Maintain aesthetic qualities of waters	Visual clarity and colour	Natural visual clarity should not be reduced by more than 20 % Natural hue of water should not be changed by more than 10 points on the Munsell Scale Natural reflectance of water should not be changed by more than 50 %	Cooks River Georges River (Salt Pan Creek)
	Surface film and debris	Oils and petrochemicals should not be noticeable as a visible form on the water, nor should they be detectable by odour Waters should be free from floating debris and litter	
	Nuisance organisms	Macrophytes, phytoplankton scums, filamentous algal mats, blue-green algae, sewage fungus and leeches should not be present in unsightly amounts	

3. Construction Water Quality Monitoring

The Sydney Metro - Water Discharge or Reuse Procedure regulates both onsite reuse and offsite point source discharge. Prior to any discharge, the water is tested and if suitable, the HSEJV Environment Manager (or delegate) approves the discharge, either that the water is suitable for reuse onsite or discharge on/off site, by using the permit to discharge.

3.1. Reuse or discharge on site

Where practicable, water may be reused on site, for example, for dust suppression, to assist with compaction or for watering landscape/ retained vegetation. If water cannot be reused onsite, water can be discharged to land within the project site boundary if complying with the following criteria:

- No potential for water to leave the premises;
- No surface runoff will be generated from the reuse (reuse includes dust suppression, watering retained vegetation etc.); and
- No potential for water to reach any watercourse.

As with discharges to land, the TSS criterion does not apply as water will not be discharged to any watercourse. However, to avoid impacts to vegetation pH testing and a visual inspection for oil or grease must be undertaken as outlined in Table 1 below.

Table 1 – Criteria for Onsite Reuse or Discharge

Parameter	Criterion	Method	Time prior to discharge
Oil and grease	Non-visible	Visual inspection	< 1 hour
pH	6.5 – 8.5	Probe/Meter	< 1 hour

No water discharge to land occurred at Marrickville, Canterbury and Lakemba stations during the reporting period.

There were no instances of water reuse onsite during this reporting period at Marrickville, Canterbury and Lakemba Stations. Daily rainfall data for the reporting period is provided in Appendix A.

3.2. Water discharge offsite to receiving waters

The SWMP includes the Water Quality Monitoring Program which requires water quality monitoring to be undertaken for controlled discharges offsite to ensure compliance with the discharge criteria defined in Section 5.2.2 of the SWMP (refer Table 2 below). The Water Quality Monitoring Program requires a 6-monthly report from the results of monitoring undertaken prior to controlled discharge offsite.

Table 2 – Criteria for Offsite Discharge

Parameter	Criterion	Method	Time prior to discharge
Oil and grease	Non-visible	Visual inspection	< 1 hour
pH	6.5 – 8.5	Probe/Meter	< 1 hour
Total Suspended Solids (TSS)	<50 mg/L	Meter/grab sample	< 1 hour/ <24 hours

No discharge offsite to receiving waters occurred at Marrickville, Canterbury and Lakemba stations during the reporting period.

3.3. Permit to Dewater

HSEJV has an internal Permit to Dewater system, which ensures compliance with discharge criteria at all times. Monitoring is done prior to each dewatering event and must be in compliance with Section 5.2.2 of the SWMP.

During the reporting period, no water discharge occurred at Marrickville, Canterbury and Lakemba Stations, therefore, no Permit to Discharge forms were issued.

3.4. Environmental Condition Surveys

HSEJV did not undertake any works at major drainage crossings and outlets within the localised catchments during this reporting period. Therefore, no environmental conditions survey on major drainage crossings/outlets was required.

The ancillary facility at 6 Charles Street (approved under A17) is located close to the Cooks River at a distance of approximately 20m. This area was used for storage and is equipped with hardstands.

The Marrickville MSB area is located along a drainage channel that is connected with the Cooks River.

Erosion and sediment controls are in place to prevent uncontrolled discharge offsite to the Cooks River catchment. Refer to Appendix A for inspection reports.

3.5. Monitoring following a Rain Event (>20mm) in 24 hours

Regular and ongoing maintenance of erosion and sediment controls and inspection of access/egress locations at all three Stations was conducted. The HSEJV Environment team conducted inspections pre, during and post rainfall events (>20mm) in 24 hours. Refer to records in Appendix A.

3.6. Uncontrolled Discharge from Site

Discharge occurred via stabilised controls into the urban stormwater catchment at Lakemba, Canterbury and Marrickville Stations. Minor erosion sediment control breaches occurred at Canterbury and Lakemba Stations; these minor breaches were addressed via HSEJV and ER inspections.

4. Noise and Vibration

The CNVMP includes the Construction Noise and Vibration Monitoring Program. This program requires a 6-monthly report from the results of construction noise and vibration monitoring.

Below are details regarding noise and vibration modelling and monitoring:

- Renzo Tonin and Associates have been engaged on the project since 3 June 2021 to conduct noise and vibration modelling as well as part of the noise monitoring and all of the vibration monitoring. A web-based Construction noise modelling tool (Gatewave) has been used to produce Construction Noise and Vibration Assessment (CNVIA) reports for this project.

4.1. Noise Monitoring

In accordance with CoA C13, the Noise and Vibration Monitoring Program is to be carried out for the duration of Construction.

As per Section 7.2 of the CNVMP, noise monitoring is required:

- In response to noise complaints
- If requested by Sydney Metro, the Environmental Representative (ER), Department of Planning and Environment (DPE) or NSW Environment Protection Authority (EPA)
- To augment baseline noise levels, if the noise environment at a receiver is considered to be different from the noise logger locations used for the Environmental Impact Statement (EIS)
- To verify predictions
- As part of a plant noise audit
- If predicted noise levels exceed the trigger levels requiring “M” (Monitoring) in accordance with the additional mitigation measures matrices (AMMM) provided in Section 7.12 of the CNVMP.

Noise monitoring is required if the predicted airborne noise level is above the applicable additional mitigation measures (AMM) trigger level, which is set relative to the noise management level (NML).

Ground borne noise measurements were reviewed and it was agreed with the HSEJV noise consultant, Sydney Metro and the ER that air borne noise would be dominant from the surface works. Therefore, ground borne noise does not require further assessment in accordance with the Sydney Metro Construction Noise and Vibration Strategy (2016) (CNVS) (refer Section 6.5 of the CNVMP).

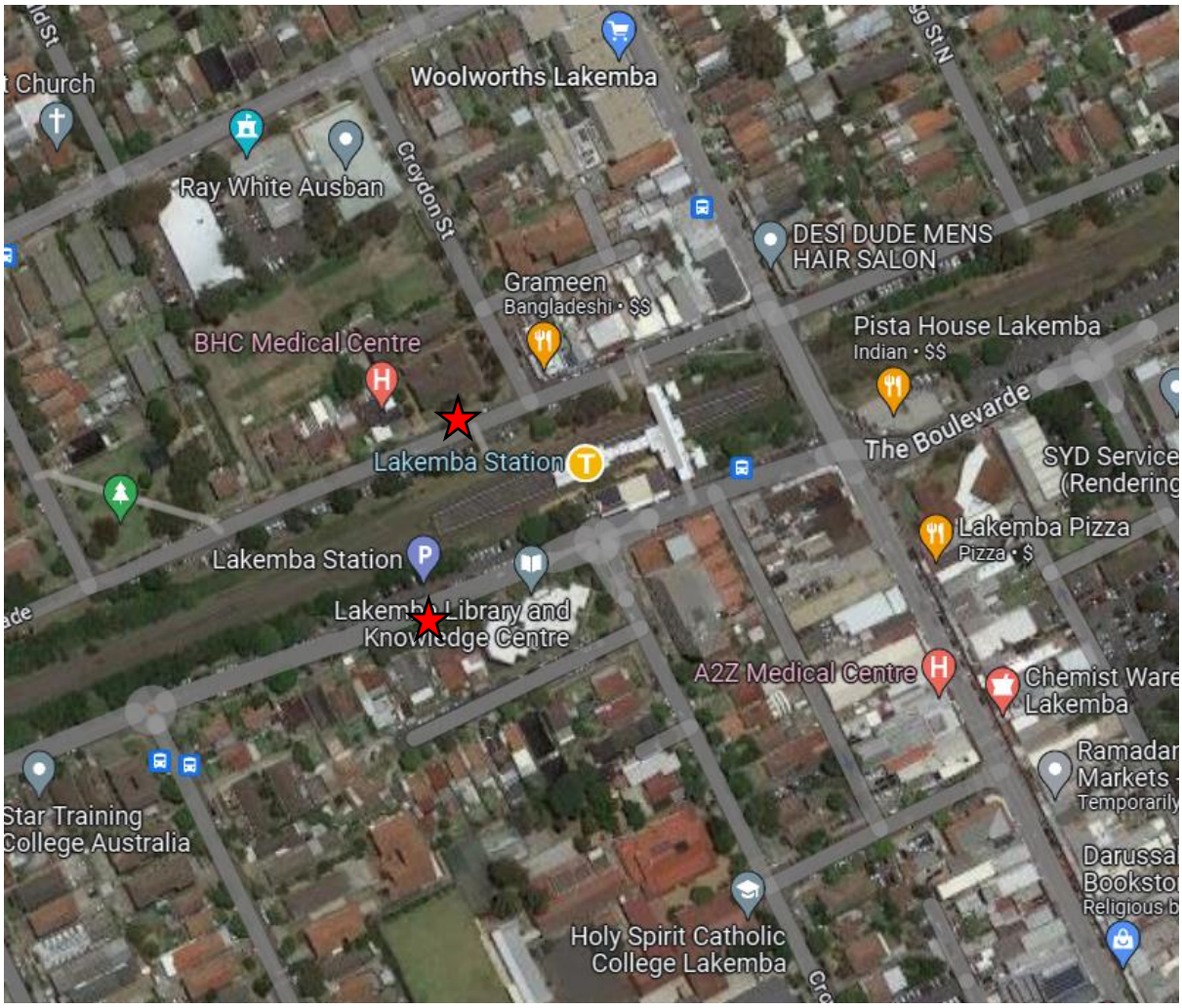
Generally, noise monitoring which is triggered by the CNVS AMMs is to be carried out in a location representing the receiver. HSEJV has determined the most appropriate monitoring locations, based on construction activities, noise modelling undertaken and community

feedback. Gatewave provides NMLs for monitoring locations to directly compare the measured NMLs against predicted noise levels modelled in the CNVIA reports.

Nominated noise monitoring locations are provided below, however these locations can be changed for specific construction activities.

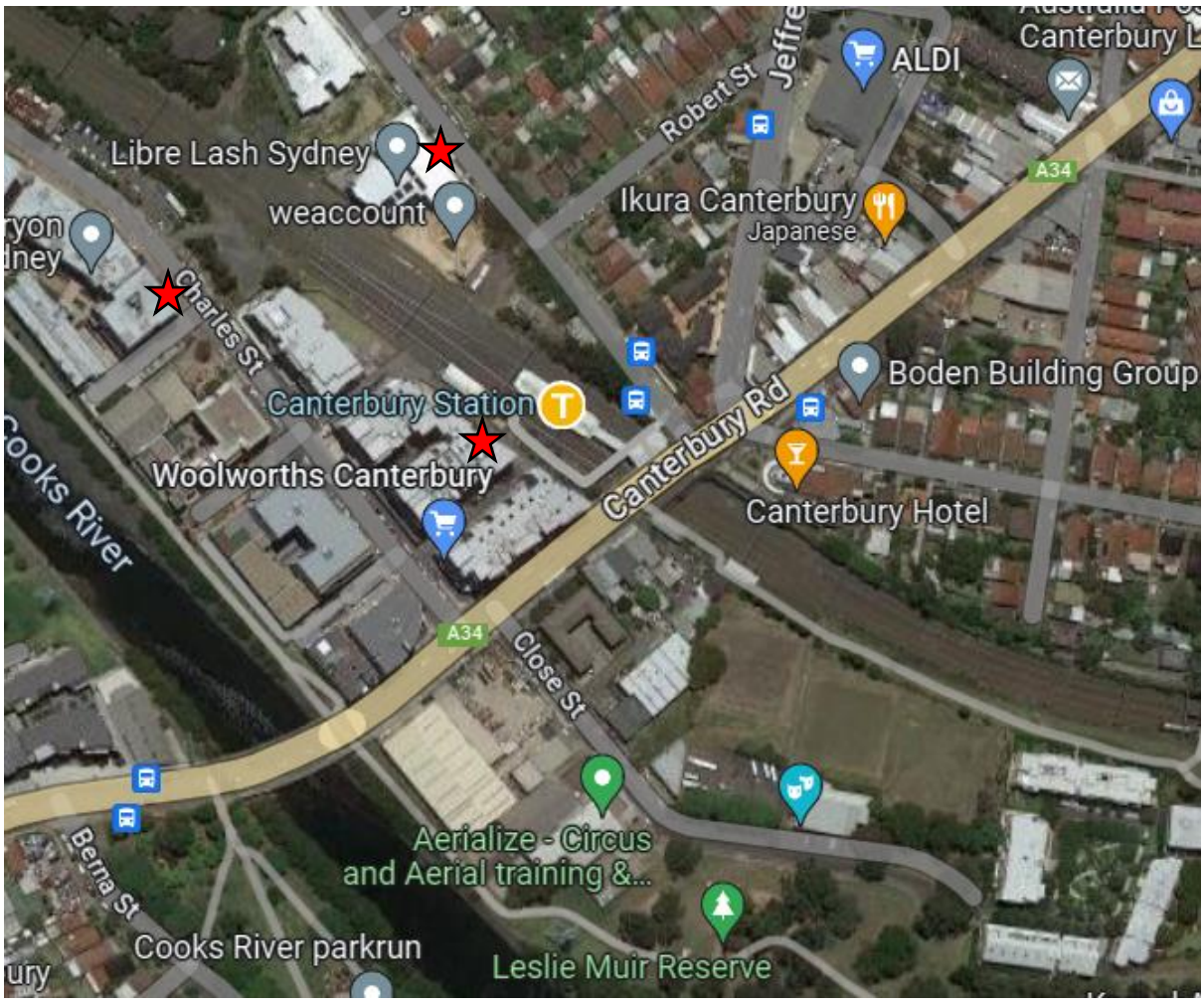
Lakemba:

- 15-19 Croydon Street, Lakemba
- 64 The Boulevarde, Lakemba



Canterbury:

- 4 Broughton Street, Canterbury
- 2 Charles Street, Canterbury
- 11-15 Charles Street Canterbury



Noise results of attended noise monitoring conducted by HSEJV in the reporting period are summarised in Table 3 below, demonstrating compliance with project requirements, including the aforementioned extract from the management plan. A detailed noise monitoring register is provided in Appendix B.

Table 3 – Summary of Noise Monitoring Results

Circumstance	Date	Station(s)	Compliance Status
OOHW-049 WE42	15/04/2023	Canterbury	Compliant
	16/04/2023	Canterbury & Lakemba	Compliant
OOHW-053 WE47	20/05/2023	Canterbury	Compliant
	21/05/2023	Lakemba	Compliant

Noise monitoring equipment details for the Class 1 sound level meter and calibrator, including make, model, serial number, last calibration date and The National Association of Testing Authorities (NATA) testing facility, and calibration certificates are provided in Appendix C.

Further details are collected for each field reading, including time, duration, description of works and extraneous noise sources during reading.

4.2. Vibration Monitoring

In accordance with CoA C13, the Noise and Vibration Monitoring Program is to be carried out for the duration of Construction.

As per section 8.2 of the CNVMP, vibration monitoring is required:

- In response to vibration complaints;
- If requested by Sydney Metro, the ER, DPE or EPA;
- To confirm baseline vibration levels currently experienced at heritage-listed structures and at any vibration-sensitive equipment;
- To verify predictions, particularly at the commencement of vibration-generating works;
- Where vibration levels are predicted to exceed the vibration screening level, attended vibration monitoring would be carried out to ensure vibration levels remain below appropriate limits for that structure, in accordance with the revised environmental mitigation measure (REMM) NVC12;
- If predicted vibration levels exceed the trigger levels requiring “M” (Monitoring) in accordance with the AMMM matrices provided in Section 7.12 of the CNVMP.

Vibration monitoring is required if vibration-generating works are carried out within the safe working distances provided in Section 6.4 in the CNVMP.

Generally, vibration monitoring which is triggered by the CNVS AMMs are to be carried out in a location representing the receiver. HSEJV has determined the most appropriate monitoring locations, based on construction activities and vibration modelling undertaken. The measurements include a method to derive or directly compare the measured levels with the applicable vibration management level (VML).

During the reporting period, no high impact/high vibratory works took place adjacent buildings/infrastructure, therefore, no vibration monitoring was undertaken.

4.3. Complaints

A total of fifteen (15) noise & vibration complaints were received between Canterbury and Lakemba Stations during the reporting period. The complaints were received during standard and out of hours (OOH) work and have been summarised in table 4 below. Scheduled monitoring was undertaken during OOH work which indicated works were within modelled parameters i.e. did not exceed the predicted noise levels. No complaints were received at Marrickville Station.

Table 4 - Noise and Vibration Complaints

Location	Date/time received	Topics raised by the Stakeholder	Closed as
Canterbury	17/08/2023 4:53:00 PM	Noise & Vibration - OOHW; Respite & AA - Alternative Accommodation	Not related to Sydney Metro activities
Canterbury	12/07/2023 1:59:00 AM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	12/07/2023 12:39:00 AM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	11/07/2023 9:28:00 AM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	8/07/2023 11:15:00 AM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	7/05/2023 12:26	Noise & Vibration - OOHW	Unavoidable
Canterbury	27/04/2023 12:11:00 PM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	16/04/2023 14:19	Noise & Vibration - OOHW; Noise & Vibration - Standard hours; Notification of work; Respite & AA - Respite	Unavoidable
Canterbury	16/04/2023 12:34	Noise & Vibration - OOHW; Noise & Vibration - Standard hours; Notification of work	Unavoidable
Canterbury	16/04/2023 4:24	Noise & Vibration - OOHW	Unavoidable
Canterbury	15/04/2023 22:23	Noise & Vibration - OOHW	Unavoidable
Lakemba	15/04/2023 10:45:00 PM	Noise & Vibration - OOHW	Not related to Sydney Metro activities
Canterbury	28/03/2023 5:02:00 PM	Noise & Vibration - OOHW;Respite & AA - Respite	Not related to Sydney Metro activities
Canterbury	22/03/2023 11:48	Noise & Vibration - Standard hours	Avoidable
Canterbury	14/03/2023 1:31:00 PM	Noise & Vibration - OOHW	Not related to Sydney Metro activities

5. Conclusion

This report presents surface water, noise and vibration monitoring data and observations for the 6-month reporting period of 1st March 2023 to 25th September 2023.

No instances of water reuse or water discharge occurred at any station during the reporting period.

No uncontrolled discharge offsite occurred during the reporting period as defined in section 3.6.

Verification noise monitoring was undertaken at Canterbury and Lakemba stations during the reporting period. The noise monitoring results did not identify any exceedances of the predicted noise levels that were related to HSEJV construction activities.

Vibration monitoring was not undertaken during the reporting period.

A total of fifteen (15) noise & vibration complaints were received between Canterbury and Lakemba Stations during the reporting period. No complaints were received at Marrickville Station.

Due to the remaining low risk scope and sites being near practical completion, no further monitoring will be triggered, therefore, this will be the final construction monitoring report.

Appendix A: Daily Rainfall Data and Inspections Records

Daily rainfall

Observations of Daily rainfall are nominally made at 9 am local clock time and record the total for the previous 24 hours. Rainfall includes all forms of precipitation that reach the ground, such as rain, drizzle, hail and snow. About rainfall data

Station: Canterbury Racecourse AWS **Number:** 66194 **Opened:** 1995 **Now:** Open
Lat: 33.91° S **Lon:** 151.11° E **Elevation:** 3 m

Key: Units = mm *12.3* = Not quality controlled. ↓ = Part of accumulated total

2023	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	*0.2*	*0*	*0*	*0*		*0*	*0*	*0*	*0*			
2nd	*0*	*0*	*0.4*	*23.4*	*0*	*0*	*0*	*0*	*0*			
3rd	*0*	*0*	*0*	*20.8*	*0*	*0*	*0*	*0*	*0*			
4th	*1.0*	*0*	*3.2*	*0.4*	*0.4*	*1.0*	*2.4*	*0*	*0*			
5th	*9.6*	*0*	*0.2*	*0*	*0*	*0*	*2.2*	*0*	*0*			
6th	*2.0*	*0*	*0*	*0*	*0*	*1.8*		*9.8*	*0*			
7th	*59.0*	*0*	*0*	*0.8*	*0*	*0*	*0*	*0*	*0*			
8th	*4.4*	*0*	*0*	*8.2*	*8.8*	*0*	*0*	*4.6*	*3.2*			
9th	*0*	*37.6*	*0*	*0*	*0.2*	*0.4*	*0*	*0.2*	*2.8*			
10th	*0*	*41.2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
11th	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
12th	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
13th	*0*	*0.2*	*5.0*	*0.4*	*0*	*0.4*	*0*	*0*	*0*			
14th	*0.8*	*0.4*	*2.0*	*26.6*	*10.0*	*0*	*0*	*15.6*	*0*			
15th	*2.2*	*35.2*	*31.4*	*4.4*	*1.8*	*0*	*0*	*3.0*	*0*			
16th	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0.6*	*0*			
17th	*0*	*0*	*0*	*0*	*4.2*	*0*	*0.8*	*0*	*0*			
18th	*0*	*0*	*0*	*0*	*0.2*	*0*	*0.2*	*7.6*	*0*			
19th	*19.8*	*5.2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
20th	*2.6*	*0.2*	*0*		*0*	*0*	*0*	*0*	*0*			
21st	*1.4*	*0*	*2.6*		*0*	*0*	*0*	*0*	*0*			
22nd	*2.4*	*90.8*	*0*		*0*	*0*	*0*	*0*	*10.0*			
23rd	*40.6*	*2.8*	*0.2*		*0*	*8.0*	*0*	*2.0*	*0*			
24th	*0*	*7.4*	*4.0*		*0*	*0*	*11.6*	*1.4*	*0*			
25th	*6.8*	*0.2*	*0*		*0*	*0*	*0*	*0*	*0*			
26th	*0*	*0*	*1.4*		*0*	*0*	*0.2*	*0*				
27th	*0.6*	*0.4*	*8.8*		*0*	*0*	*0*	*0*				
28th	*0.8*	*0.4*	*0.4*		*0*	*1.0*		*0*				
29th	*0*		*3.8*		*0*	*3.0*	*0*	*0.2*				
30th	*1.6*		*0.4*		*0*	*0*	*0*	*0*				
31st	*38.2*		*0*		*0*		*0*	*8.4*				
Highest Daily	*59.0*	*90.8*	*31.4*	*26.6*	*10.0*	*8.0*	*11.6*	*15.6*	*10.0*			
Monthly Total	*194.0*	*222.0*	*63.8*			*15.6*	*17.4*	*53.4*				

Summary statistics for all years

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	82.4	127.3	115.1	98.9	75.2	98.6	65.9	61.8	49.9	67.2	72.9	63.9
Median	62.8	109.2	72.8	69.7	45.8	75.9	49.4	41.8	47.5	44.8	55.2	64.8
Highest Daily	*128.0* 31st 2001	*189.2* 10th 2020	*125.2* 8th 2022	*123.0* 21st 2015	*84.8* 14th 2003	*110.0* 5th 2016	*111.4* 3rd 2022	*121.0* 31st 1996	*70.2* 7th 2006	*121.2* 15th 2014	*64.6* 5th 2010	*67.0* 11th 2002

Data within the table which are in italics represent observations which have not been fully quality controlled, a process which may take a number of months to complete. While these data may be correct, you should exercise caution in their use. Observations of daily rainfall which span more than one day are shown in light grey, indicating that there is some uncertainty associated with the exact date on which the daily rainfall occurred.

Gaps occur in the table where a valid observation is not available. This is frequently associated with the observer being unavailable (where observations are undertaken manually), a failure in the observing equipment, or when an event has produced suspect data.

Product Code: IDCJAC0009 reference: 99577824

Page created: Mon 25 Sep 2023 12:46:35 PM AEST

Daily rainfall

Observations of Daily rainfall are nominally made at 9 am local clock time and record the total for the previous 24 hours. Rainfall includes all forms of precipitation that reach the ground, such as rain, drizzle, hail and snow. About rainfall data

Station: Marrickville Golf Club **Number:** 66036 **Opened:** 1904 **Now:** Open
Lat: 33.92° S **Lon:** 151.14° E **Elevation:** 6 m

Key: Units = mm *12.3* = Not quality controlled. ↓ = Part of accumulated total

2023	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1st	*1.0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*				
2nd	*0*	*0*	*0*	*22.0*	*0*	*0*	*0*	*0*				
3rd	*0*	*0*	*0*	*18.0*	*0*	*0*	*0*	*0*				
4th	*1.0*	*0*	*5.0*	*0*	*0*	*0*	*2.0*	*0*				
5th	*12.0*	*0*	*0*	*0*	*0*	*0*	*2.0*	*0*				
6th	*3.0*	*0*	*0*	*0*	*0*	*3.0*	*0*	*15.0*				
7th	*56.0*	*0*	*0*	*2.0*	*0*	*0*	*0*	*0*				
8th	*0*	*0*	*0*	*8.0*	*10.0*	*0*	*2.0*	*8.0*				
9th	*0*	*65.0*	*0*	*0*	*0*	*0*	*0*	*0*				
10th	*0*	*24.0*	*0*	*0*	*0*	*0*	*0*	*0*				
11th	*0*	*0*	*0*	*0*	*0*	*0*	*6.0*	*0*				
12th	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*				
13th	*0*	*0*	*4.0*	*0*	*0*	*1.0*	*0*	*0*				
14th	*1.0*	*1.0*	*3.0*	*23.0*	*16.0*	*0*	*0*	*16.0*				
15th	*2.0*	*3.0*	*27.0*	*4.0*	*1.0*	*0*	*0*	*4.0*				
16th	*0*	*0*	*0*	*0*	*1.0*	*0*	*0*	*0*				
17th	*0*	*0*	*0*	*0*	*8.0*	*0*	*1.0*	*0*				
18th	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*6.0*				
19th	*19.0*	*5.0*	*0*	*0*	*0*	*0*	*0*	*0*				
20th	*3.0*	*0*	*0*	*11.0*	*0*	*0*	*0*					
21st	*1.0*	*0*	*1.0*	*5.0*	*0*	*0*	*0*					
22nd	*2.0*	*86.0*	*0*	*0*	*0*	*0*	*0*					
23rd	*14.0*	*1.0*	*0*	*0*	*0*	*8.0*	*0*					
24th	*0*	*5.0*	*4.0*	*2.0*	*0*	*0*	*25.0*					
25th	*5.0*	*0*	*0*	*1.0*	*0*	*0*	*0*					
26th	*0*	*0*	*7.0*	*0*	*0*	*0*	*0*					
27th	*0*	*0*	*6.0*	*0*	*0*	*0*	*0*					
28th	*1.0*	*1.0*	*0*	*0*	*0*	*1.0*	*0*					
29th	*0*		*4.0*	*1.0*	*0*	*2.0*	*0*					
30th	*1.0*		*0*	*34.0*	*0*	*0*	*0*					
31st	*35.0*		*0*		*0*		*0*					
Highest Daily	*56.0*	*86.0*	*27.0*	*34.0*	*16.0*	*8.0*	*25.0*	*16.0*				
Monthly Total	*157.0*	*191.0*	*61.0*	*131.0*	*36.0*	*15.0*	*38.0*	*49.0*				

Annual total to Aug this year = *678.0* mm

Summary statistics for all years

Statistic	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	81.0	109.2	116.3	104.1	93.6	108.4	82.2	65.4	55.7	64.5	68.9	73.4
Median	66.9	84.5	89.2	77.4	65.8	77.7	48.0	42.3	46.6	46.4	58.3	59.2
Highest Daily	139.7 13th 1911	*194.0* 10th 2020	215.9 9th 1913	*123.0* 21st 2015	111.8 5th 1919	*104.0* 5th 2016	127.0 10th 1904	78.7 31st 1906	73.7 29th 1916	*124.0* 15th 2014	143.5 14th 1969	88.9 13th 1910

Data within the table which are in italics represent observations which have not been fully quality controlled, a process which may take a number of months to complete. While these data may be correct, you should exercise caution in their use. Observations of daily rainfall which span more than one day are shown in light grey, indicating that there is some uncertainty associated with the exact date on which the daily rainfall occurred.

Gaps occur in the table where a valid observation is not available. This is frequently associated with the observer being unavailable (where observations are undertaken manually), a failure in the observing equipment, or when an event has produced suspect data.

Product Code: IDCJAC0009 reference: 99577816

Page created: Mon 25 Sep 2023 12:45:55 PM AEST

Inspection: SEQ-FM-006 Weekly Site Environment and Sustainability Inspection Checklist #20

63/63	33	0	30	0
Items Inspected	Conforming	Deficient	N/A	Neutral

Type	Environmental	**Status**	Closed by Jake Iskenderian on 12/4/23
Trade	All Trades	**Location**	Marrickville
Spec Section		**Linked Drawings**	
Description	General site inspection.		
Attachments			

Inspection Details

Inspection Date	4 Apr, 2023	**Due Date**	
Point of Contact		**Responsible Contractor**	Haslin Constructions Pty Ltd
Assignee(s)	Jake Iskenderian		

Site Information

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

1.1 Weather *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	Dry
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Dry on 12 Apr, 2023 at 11:59 AM AEST	

1.2 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:59 AM AEST	

General

0 Neutral **5 Conforming** **0 Deficient** **1 N/A**

2.1 Is the site generally in a tidy condition and demonstrates good housekeeping *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

2.2 Materials, equipment and infrastructure stored within designated project boundary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	Pass	Fail	N/A
2.3 All works are being undertaken within the project boundary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	Pass	Fail	N/A
2.4 Work areas demarcated and fences maintained as per the approvals *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	Pass	Fail	N/A
2.5 Environmental Control Plan easily accessible and current *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	N/A
2.6 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST	

Public Roads

0 Neutral **1 Conforming** **0 Deficient** **2 N/A**

	Pass	Fail	N/A
3.1 Public roadways maintained free of mud and dirt from construction site activities *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	Pass	Fail	N/A
3.2 Wheel washers / Cattle grids maintained appropriately *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST			

	N/A
3.3 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST	

Soil and Erosion Control

0 Neutral **2 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
4.1 Erosion controls installed correctly and functional (e.g. silt fences, sand bags, coir logs) *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST			

	Pass	Fail	N/A
4.2 Stockpiles are covered, with sediment controls in place, when not being used *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST

	Pass	Fail	N/A
4.3 Stockpiles are located greater than 10m from the nearest stormwater inlet / drain / stream / river / sed. pond *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST

	Pass	Fail	N/A
4.4 Drains / Gutters are clean and free of debris and rubbish *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:00 PM AEST

	N/A
4.5 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:00 PM AEST

Water Quality

0 Neutral **2 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
5.1 Activities with the potential for spillage, including refuelling, maintenance of equipment, and cleaning conducted in areas with suitable containment *Activity: 2 Response Changes, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:01 PM AEST

	Pass	Fail	N/A
5.2 All discharges recorded and permit signed off *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:01 PM AEST

	Pass	Fail	N/A
5.3 No open excavations / sumps / pits / spill trays need dewatering *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:01 PM AEST

	Pass	Fail	N/A
5.4 No controls have failed causing sediment discharge / erosion *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:01 PM AEST

	N/A
5.5 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:01 PM AEST

Noise and Vibration

0 Neutral **2 Conforming** **0 Deficient** **2 N/A**

6.1 Equipment switched off when not in use
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

6.2 No evidence of tonal or intrusive noise at nearby residences
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

6.3 All relevant OOHWAs have been approved (if applicable)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

6.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

Air Quality

0 Neutral **1 Conforming** **0 Deficient** **3 N/A**

7.1 No visible dust emissions including wind-blown and traffic-generated dust from site, impacting on the receiving environment, including adjacent receivers and road users
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

7.2 Dust suppression in use (where required)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

7.3 Are loads leaving site adequately covered
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

7.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

Waste and Resource Management

0 Neutral **3 Conforming** **0 Deficient** **1 N/A**

8.1 Waste receptacles accessible, clearly marked and in a designated area
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

8.2 Recyclable material separated
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

8.3 Waste bins / Skips adequately serviced and emptied
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

8.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

Vegetation

0 Neutral **3 Conforming** **0 Deficient** **4 N/A**

9.1 Clearing limits established and well defined
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

9.2 Clearing and grubbing undertaken in-line with permits / ecologist approval
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST

9.3 Vegetation protection areas delineated (flagging / fencing)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

9.4 Materials and vehicles not stored under trees/drip lines
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

	Pass	Fail	N/A
9.5 Weeds maintained *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
9.6 Native vegetation stockpiled or mulched for reuse (where possible) *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST			

	N/A
9.7 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST	

Heritage

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
10.1 Heritage items protected / demarcated and signposted where necessary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	N/A
10.2 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST	

Hazardous Materials

0 Neutral **4 Conforming** **0 Deficient** **2 N/A**

	Pass	Fail	N/A
11.1 Chemicals and hazardous materials stored in bunded areas *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
11.2 Hazardous materials suitably labelled and sign posted *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
11.3 Spill kits readily accessible and maintained *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
11.4 No signs of oil/chemical spills *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
11.5 Concrete washout appropriately located and signposted *Activity: 2 Response Changes, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST			
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

11.6 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST	

Contaminated Soil

0 Neutral **0 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
12.1 Spoil stockpiles identified and separated *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST			

	Pass	Fail	N/A
12.2 Contaminated spoil managed in accordance with Waste management procedure *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST			

12.3 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST	

Visual amenity

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
13.1 There is no visible graffiti or rubbish impacting the publics visual amenity *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST			

13.2 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:02 PM AEST	

Sustainability

0 Neutral **4 Conforming** **0 Deficient** **3 N/A**

14.1 Is water usage being monitored/tracked for reporting purposes
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:02 PM AEST

14.2 Is energy usage being monitored/tracked for reporting purposes
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST

14.3 Are waste and recycling usage being monitored/tracked for reporting purposes
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST

14.4 Are all deliveries being monitored/tracked for reporting purposes
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST

14.5 Is soil to be recycled correctly separated and stored on site
Activity: 2 Response Changes, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:03 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST

14.6 Lighting for OOHW is directed away from sensitive receivers
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:03 PM AEST

14.7 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 12:03 PM AEST

Community

0 Neutral **3 Conforming** **0 Deficient** **0 N/A**

15.1 Is there community signage on site?
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations
☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST

15.2 2. Is the shade cloth in place and legible (i.e., not covered in graffiti/dirt)? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST			

15.3 3. Has the site been laid out with Crime Prevention Through Design in mind? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 12:03 PM AEST			

Inspection Signatures

Jake Iskenderian

Haslin Constructions Pty Ltd
Suite 2, 2-4 Merton Street
Sutherland, New South Wales 2232
P: +61 2 8522 3900

Project: 226 Canterbury Railway Station
Broughton St
Canterbury, New South Wales 2193

Inspection: SEQ-FM-006 Weekly Site Environment and Sustainability Inspection Checklist #26

63/63	29	3	30	1
Items Inspected	Conforming	Deficient	N/A	Neutral

Type	Environmental	**Status**	Closed by Jake Iskenderian on 12/4/23
Trade	All Trades	**Location**	MSB
Spec Section		**Linked Drawings**	
Description	General site inspection.		
Attachments			

Inspection Details

Inspection Date	4 Apr, 2023	**Due Date**	
Point of Contact	Ronan Nevin	**Responsible Contractor**	Haslin Constructions Pty Ltd
Assignee(s)	Vitor Freitas Reis		

Site Information

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

1.1 Weather
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Dry

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Dry on 12 Apr, 2023 at 01:12 PM AEST

1.2 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:12 PM AEST

General

0 Neutral **5 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
2.1 Is the site generally in a tidy condition and demonstrates good housekeeping *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:13 PM AEST

	Pass	Fail	N/A
2.2 Materials, equipment and infrastructure stored within designated project boundary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:13 PM AEST

2.3 All works are being undertaken within the project boundary
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:13 PM AEST

2.4 Work areas demarcated and fences maintained as per the approvals
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:13 PM AEST

2.5 Environmental Control Plan easily accessible and current
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:13 PM AEST

2.6 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:13 PM AEST

Public Roads

0 Neutral **1 Conforming** **0 Deficient** **2 N/A**

3.1 Public roadways maintained free of mud and dirt from construction site activities
Activity: 2 Response Changes, 0 Attachments, 1 Photo, 1 Comment, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) added 1 photo via mobile on 12 Apr, 2023 at 01:14 PM AEST

20230404_121558.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:14 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 01:14 PM AEST
Minor tracking of sediment observed on Cha Street. Street sweeper engaged and on site at time of inspection.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 01:13 PM AEST

3.2 Wheel washers / Cattle grids maintained appropriately
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:13 PM AEST

3.3 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:13 PM AEST

Soil and Erosion Control

0 Neutral **1 Conforming** **1 Deficient** **3 N/A**

4.1 Erosion controls installed correctly and functional (e.g. silt fences, sand bags, coir logs)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:15 PM AEST

4.2 Stockpiles are covered, with sediment controls in place, when not being used
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:15 PM AEST

4.3 Stockpiles are located greater than 10m from the nearest stormwater inlet / drain / stream / river / sed. pond
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:15 PM AEST

4.4 Drains / Gutters are clean and free of debris and rubbish
Activity: 1 Response Change, 0 Attachments, 2 Photos, 1 Comment, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 2 photos via mobile on 12 Apr, 2023 at 01:16 PM AEST

20230404_115001.jpg

20230404_115005.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 01:16 PM AEST
Build up of leaf litter/debris in gutter along Charles St compound driveway.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 01:15 PM AEST

4.5 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:15 PM AEST

Water Quality

0 Neutral **3 Conforming** **0 Deficient** **2 N/A**

5.1 Activities with the potential for spillage, including refuelling, maintenance of equipment, and cleaning conducted in areas with suitable containment
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:16 PM AEST

5.2 All discharges recorded and permit signed off
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:16 PM AEST

5.3 No open excavations / sumps / pits / spill trays need dewatering
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:16 PM AEST

5.4 No controls have failed causing sediment discharge / erosion
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:16 PM AEST

5.5 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:16 PM AEST

Noise and Vibration

0 Neutral **2 Conforming** **0 Deficient** **2 N/A**

6.1 Equipment switched off when not in use
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:16 PM AEST

6.2 No evidence of tonal or intrusive noise at nearby residences
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

6.3 All relevant OOHWAs have been approved (if applicable)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:16 PM AEST

6.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Air Quality

0 Neutral **1 Conforming** **0 Deficient** **3 N/A**

7.1 No visible dust emissions including wind-blown and traffic-generated dust from site, impacting on the receiving environment, including adjacent receivers and road users
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

7.2 Dust suppression in use (where required)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

7.3 Are loads leaving site adequately covered
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

7.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Waste and Resource Management

0 Neutral **3 Conforming** **0 Deficient** **1 N/A**

8.1 Waste receptacles accessible, clearly marked and in a designated area
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

8.2 Recyclable material separated
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

8.3 Waste bins / Skips adequately serviced and emptied
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

8.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Vegetation

1 Neutral | 2 Conforming | 0 Deficient | 4 N/A

9.1 Clearing limits established and well defined
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

9.2 Clearing and grubbing undertaken in-line with permits / ecologist approval
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

9.3 Vegetation protection areas delineated (flagging / fencing)
Activity: 2 Response Changes, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

9.4 Materials and vehicles not stored under trees/drip lines
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

9.5 Weeds maintained
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

9.6 Native vegetation stockpiled or mulched for reuse (where possible)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

9.7 Other
Activity: 2 Response Changes, 0 Attachments, 2 Photos, 0 Comments, 0 Observations

Materials observed to be stored in garden bed at Charles Street compound.

Jake Iskenderian (Haslin Constructions Pty Ltd) added 2 photos via mobile on 12 Apr, 2023 at 01:23 PM AEST

20230404_114814.jpg

20230404_114828.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Materials observed to be stored in garden bed at Charles Street compound. on 12 Apr, 2023 at 01:19 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Heritage

0 Neutral **0 Conforming** **0 Deficient** **2 N/A**

10.1 Heritage items protected / demarcated and signposted where necessary
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

10.2 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

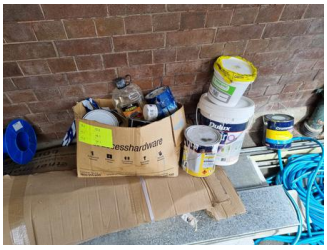
Hazardous Materials

0 Neutral **2 Conforming** **2 Deficient** **2 N/A**

11.1 Chemicals and hazardous materials stored in bunded areas
Activity: 2 Response Changes, 0 Attachments, 1 Photo, 1 Comment, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 1 photo via mobile on 12 Apr, 2023 at 01:23 PM AEST



20230404_112648.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 01:23 PM AEST
Flammable chemicals not stored within appropriate bunding on Platform 1.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 01:23 PM AEST

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

11.2 Hazardous materials suitably labelled and sign posted
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

11.3 Spill kits readily accessible and maintained
Activity: 1 Response Change, 0 Attachments, 3 Photos, 2 Comments, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 3 photos via mobile on 12 Apr, 2023 at 01:23 PM AEST

20230404_120232.jpg

20230404_120204.jpg

20230404_120212.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 01:18 PM AEST
Rubbish removed at time of inspection.

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 01:17 PM AEST
Rubbish observed in spill kit adjacent MSB.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 01:17 PM AEST

11.4 No signs of oil/chemical spills
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:17 PM AEST

11.5 Concrete washout appropriately located and signposted
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

11.6 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:17 PM AEST

Contaminated Soil

0 Neutral **0 Conforming** **0 Deficient** **3 N/A**

12.1 Spoil stockpiles identified and separated
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:18 PM AEST

	Pass	Fail	N/A
12.2 Contaminated spoil managed in accordance with Waste management procedure *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:18 PM AEST			

12.3 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:19 PM AEST	

Visual amenity

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
13.1 There is no visible graffiti or rubbish impacting the publics visual amenity *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

13.2 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:19 PM AEST	

Sustainability

0 Neutral **4 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
14.1 Is water usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
14.2 Is energy usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
14.3 Are waste and recycling usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
14.4 Are all deliveries being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
14.5 Is soil to be recycled correctly separated and stored on site *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
14.6 Lighting for OOHW is directed away from sensitive receivers *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:19 PM AEST			

	N/A
14.7 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 01:19 PM AEST	

Community

0 Neutral **3 Conforming** **0 Deficient** **0 N/A**

	Pass	Fail	N/A
15.1 Is there community signage on site? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
15.2 2. Is the shade cloth in place and legible (i.e., not covered in graffiti/dirt)? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

	Pass	Fail	N/A
15.3 3. Has the site been laid out with Crime Prevention Through Design in mind? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 01:19 PM AEST			

Inspection Signatures

Jake Iskenderian

Haslin Constructions Pty Ltd
Suite 2, 2-4 Merton Street
Sutherland, New South Wales 2232
P: +61 2 8522 3900

Project: 225 Lakemba Railway Station
Railway Pde
Lakemba, New South Wales 2195

Inspection: SEQ-FM-006 Weekly Site Environment and Sustainability Inspection Checklist #28

63/63	30	5	28	0
Items Inspected	Conforming	Deficient	N/A	Neutral

Type	Environmental	**Status**	Closed by Jake Iskenderian on 12/4/23
Trade	All Trades	**Location**	MSB
Spec Section		**Linked Drawings**	
Description	General site inspection.		
Attachments			

Inspection Details

Inspection Date	4 Apr, 2023	**Due Date**	
Point of Contact	Craig Gocher	**Responsible Contractor**	Haslin Constructions Pty Ltd
Assignee(s)	Craig Gocher		

Site Information

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

1.1 Weather
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Dry

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Dry on 12 Apr, 2023 at 11:19 AM AEST

1.2 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:19 AM AEST

General

0 Neutral **4 Conforming** **1 Deficient** **1 N/A**

2.1 Is the site generally in a tidy condition and demonstrates good housekeeping
Activity: 1 Response Change, 0 Attachments, 3 Photos, 1 Comment, 0 Observations

☐	☑	☐
Pass	Fail	N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 3 photos via mobile on 12 Apr, 2023 at 11:24 AM AEST

20230404_104848.jpg

20230404_104927.jpg

20230404_105000.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 11:24 AM AEST
Rubbish observed on ground throughout sire.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 11:20 AM AEST

2.2 Materials, equipment and infrastructure stored within designated project boundary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:20 AM AEST

2.3 All works are being undertaken within the project boundary *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:20 AM AEST

2.4 Work areas demarcated and fences maintained as per the approvals *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:20 AM AEST

2.5 Environmental Control Plan easily accessible and current *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑ Pass	☐ Fail	☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:20 AM AEST

2.6 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*			N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:20 AM AEST

Public Roads

0 Neutral **1 Conforming** **1 Deficient** **1 N/A**

3.1 Public roadways maintained free of mud and dirt from construction site activities
Activity: 1 Response Change, 0 Attachments, 1 Photo, 1 Comment, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 1 photo via mobile on 12 Apr, 2023 at 11:27 AM AEST

20230404_103541.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 11:26 AM AEST
Some tracking out of sediment observed on Railway Pde.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 11:24 AM AEST

3.2 Wheel washers / Cattle grids maintained appropriately
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:24 AM AEST

3.3 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:24 AM AEST

Soil and Erosion Control

0 Neutral **0 Conforming** **2 Deficient** **3 N/A**

4.1 Erosion controls installed correctly and functional (e.g. silt fences, sand bags, coir logs)
Activity: 1 Response Change, 0 Attachments, 5 Photos, 1 Comment, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 5 photos via mobile on 12 Apr, 2023 at 11:29 AM AEST

20230404_101632.jpg

20230404_104930.jpg

20230404_105000.jpg

20230404_105019.jpg

20230404_105028.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 11:28 AM AEST
Build up of sediment and rubbish observed in ERSED controls (coir logs) in gutter along Railway Pde.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 11:27 AM AEST

4.2 Stockpiles are covered, with sediment controls in place, when not being used
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:27 AM AEST

4.3 Stockpiles are located greater than 10m from the nearest stormwater inlet / drain / stream / river / sed. pond
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:27 AM AEST

4.4 Drains / Gutters are clean and free of debris and rubbish
Activity: 1 Response Change, 0 Attachments, 1 Photo, 1 Comment, 0 Observations

Pass	Fail	N/A
☐	☑	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) added 1 photo via mobile on 12 Apr, 2023 at 11:29 AM AEST

20230404_105047.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 11:29 AM AEST
Build up of rubbish observed at drain adjacent lower laydown area on Railway Pde.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 11:27 AM AEST

4.5 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:27 AM AEST

Water Quality

0 Neutral **3 Conforming** **0 Deficient** **2 N/A**

5.1 Activities with the potential for spillage, including refuelling, maintenance of equipment, and cleaning conducted in areas with suitable containment
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

5.2 All discharges recorded and permit signed off
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:29 AM AEST

5.3 No open excavations / sumps / pits / spill trays need dewatering
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

5.4 No controls have failed causing sediment discharge / erosion
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

5.5 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:33 AM AEST

Noise and Vibration

0 Neutral **2 Conforming** **0 Deficient** **2 N/A**

6.1 Equipment switched off when not in use
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

6.2 No evidence of tonal or intrusive noise at nearby residences
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

Pass	Fail	N/A
☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

	Pass	Fail	N/A
6.3 All relevant OOHWAs have been approved (if applicable) *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST			

6.4 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST	

Air Quality

0 Neutral **2 Conforming** **0 Deficient** **2 N/A**

	Pass	Fail	N/A
7.1 No visible dust emissions including wind-blown and traffic-generated dust from site, impacting on the receiving environment, including adjacent receivers and road users *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST			

	Pass	Fail	N/A
7.2 Dust suppression in use (where required) *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST			

	Pass	Fail	N/A
7.3 Are loads leaving site adequately covered *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST			

7.4 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST	

Waste and Resource Management

0 Neutral **3 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
8.1 Waste receptacles accessible, clearly marked and in a designated area *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST			

	Pass	Fail	N/A
8.2 Recyclable material separated *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST			

8.3 Waste bins / Skips adequately serviced and emptied
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

8.4 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

Vegetation

0 Neutral **3 Conforming** **0 Deficient** **4 N/A**

9.1 Clearing limits established and well defined
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

9.2 Clearing and grubbing undertaken in-line with permits / ecologist approval
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

9.3 Vegetation protection areas delineated (flagging / fencing)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

9.4 Materials and vehicles not stored under trees/drip lines
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

9.5 Weeds maintained
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

9.6 Native vegetation stockpiled or mulched for reuse (where possible)
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

9.7 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

Heritage

0 Neutral **0 Conforming** **0 Deficient** **2 N/A**

10.1 Heritage items protected / demarcated and signposted where necessary
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☐ Pass ☐ Fail ☑ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

10.2 Other
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

Hazardous Materials

0 Neutral **3 Conforming** **1 Deficient** **2 N/A**

11.1 Chemicals and hazardous materials stored in bunded areas
Activity: 1 Response Change, 0 Attachments, 1 Photo, 1 Comment, 0 Observations

☐ Pass ☑ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) added 1 photo via mobile on 12 Apr, 2023 at 11:31 AM AEST

20230404_104945.jpg

Jake Iskenderian (Haslin Constructions Pty Ltd) left a comment on 12 Apr, 2023 at 11:31 AM AEST
Bunding around Diesel fuel pod observed to be altered and not adequate.

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Fail on 12 Apr, 2023 at 11:30 AM AEST

11.2 Hazardous materials suitably labelled and sign posted
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

11.3 Spill kits readily accessible and maintained
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

11.4 No signs of oil/chemical spills
Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations

☑ Pass ☐ Fail ☐ N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:30 AM AEST

	Pass	Fail	N/A
11.5 Concrete washout appropriately located and signposted *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

11.6 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:30 AM AEST

Contaminated Soil

0 Neutral **0 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
12.1 Spoil stockpiles identified and separated *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST

	Pass	Fail	N/A
12.2 Contaminated spoil managed in accordance with Waste management procedure *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST

12.3 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST

Visual amenity

0 Neutral **1 Conforming** **0 Deficient** **1 N/A**

	Pass	Fail	N/A
13.1 There is no visible graffiti or rubbish impacting the publics visual amenity *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST

13.2 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	N/A

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST

Sustainability

0 Neutral **4 Conforming** **0 Deficient** **3 N/A**

	Pass	Fail	N/A
14.1 Is water usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐

Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST

	Pass	Fail	N/A
14.2 Is energy usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			
14.3 Are waste and recycling usage being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			
14.4 Are all deliveries being monitored/tracked for reporting purposes *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			
14.5 Is soil to be recycled correctly separated and stored on site *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST			
14.6 Lighting for OOHW is directed away from sensitive receivers *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☐	☐	☑
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST			
14.7 Other *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*			N/A
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with N/A on 12 Apr, 2023 at 11:32 AM AEST			

Community

0 Neutral **3 Conforming** **0 Deficient** **0 N/A**

	Pass	Fail	N/A
15.1 Is there community signage on site? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			
15.2 2. Is the shade cloth in place and legible (i.e., not covered in graffiti/dirt)? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			
15.3 3. Has the site been laid out with Crime Prevention Through Design in mind? *Activity: 1 Response Change, 0 Attachments, 0 Photos, 0 Comments, 0 Observations*	☑	☐	☐
Jake Iskenderian (Haslin Constructions Pty Ltd) responded with Pass on 12 Apr, 2023 at 11:32 AM AEST			

Inspection Signatures

Jake Iskenderian

Appendix B: HSEJV Noise Monitoring Register

Reporting Period	Type (Noise or Vibration)	Date	Time Started	Time Finished	Station	Description of Works	Monitorining Address	Predicted L_{Aeq}	Measured L_{Aeq}	Max L_{amax}	Measured Vibration PPV (mm/s)	Below Predicted Level Y/N	Was monitoring in response to a complaint?	Notes	Consultant	Link
WE42	Noise	15/04/2023	8:46:00 PM	9:01:00 PM	Canterbury	Vacuum truck, franna crane, excavator, pressure hose and lighting Tower	11-15 Charles Street	78	73	82	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The closest work area was located approximately 15m away. In the prediction model, the distance between the closest work area and the most affected facade is 1m. Less plant and equipment operating during the measurement compared to the Gatewave model.	RENZO TONIN & ASSOCIATES	N&V monitoring
	Noise	15/04/2023	9:15:00 PM	9:30:00 PM	Canterbury	Vacuum truck, franna crane, excavator, pressure hose and lighting Tower	2 Charles Street	86	60	73	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The intermittent nature of the measured works. The closest work area was located approximately 100m away. In the prediction model, the distance between the closest work area and the most affected facade is 5m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to CAN WE42 (2023) Typical, CAN WE42 – WE43 (2023) Auger, CAN WE42 – WE43 (2023) Vac truck and compactors and CAN – Compound and laydown areas. This was not observed during the measurement.		
	Noise	16/04/2023	8:40:00 PM	8:55:00 PM	Canterbury	Pressure washer	4 Broughton Street	80	64	82	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The intermittent nature of the measured works. The closest work area was located approximately 110m away. In the prediction model, the distance between the closest work area and the most affected facade is 1m. Quieter plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to CAN WE42 (2023) Typical, CAN WE42 – WE43 (2023) Auger, CAN WE42 – WE43 (2023) Vac truck and compactors and CAN – Compound and laydown areas. This was not observed during the measurement.		
	Nosie	16/04/2023	10:05:00 AM	10:20:00 PM	Canterbury	Pressure washer	15-19 Croydon Street	77	57	75	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The intermittent nature of the measured works. The closest work area was located approximately 50m away. In the prediction model, the distance between the closest work area and the most affected facade is 15m. Quieter plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to LAK WE42 (2023) PLATFORM/CONCOURSE HIGH IMPACT, LAK WE42 & WE43 (2023) TYPICAL, LAK WE42 & WE43 (2023) CAR PARK HIGH IMPACT, LAK WE42 (2023) EXCAVATOR WITH JACKHAMMER and LAK WE42 (2023) AUGER. This was not observed during the measurement.		
	Noise	20/05/2023	11:03:00 PM	11:18:00 PM	Canterbury	Excavator with bucket attachment & power hand tools	4 Broughton Street	86	51	68	N/A	Y	N	The measured LAeq, 15min is below the predicted noise level. This can be attributed to: The predicted noise level included high impact activities. No high impact activities were occurring during the measurement. The intermittent nature of the measured works. The closest work area was located approximately 132m away. In the prediction model, the distance between the closest work area and the most affected facade is 1m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to Canterbury WE47 (2023) – Sugarhouse Rd, CAN WE47 (2023) LV Canterbury Rd, CAN WE47 (2023) Typical, CAN WE47 (2023) Driveway remediation, CAN WE47 (2023) Laydowns and CAN WE47 (2023) Site Compound. This was not observed during the measurement.		
	Noise	20/05/2023	11:24:00 PM	11:39:00 PM	Canterbury	Excavator with bucket attachment & power hand tools	11-15 Chalres Street	76	57	82	N/A	Y	N	The measured LAeq, 15min is below the predicted noise level. This can be attributed to: The predicted noise level included high impact activities. No high impact activities were occurring during the measurement. The intermittent nature of the measured works. The closest work area was located approximately 18m away. In the prediction model, the distance between the closest work area and the most affected facade is 10m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to Canterbury WE47 (2023) – Sugarhouse Rd, CAN WE47 (2023) LV Canterbury Rd, CAN WE47 (2023) Typical, CAN WE47 (2023) Driveway remediation, CAN WE47 (2023) Laydowns and CAN WE47 (2023) Site Compound. This was not observed during the measurement.		

Reporting Period	Type (Noise or Vibration)	Date	Time Started	Time Finished	Station	Description of Works	Monitorining Address	Predicted L_{Aeq}	Measured L_{Aeq}	Max L_{amax}	Measured Vibration PPV (mm/s)	Below Predicted Level Y/N	Was monitoring in response to a complaint?	Notes	Consultant	Link
WE47	Noise	20/05/2023	11:46:00 PM	12:01:00 AM	Candterbury	Excavator with bucket attachment & power hand tools	2 Charles Street	75	45	65	N/A	Y	N	The measured LAeq, 15min is below the predicted noise level. This can be attributed to: The predicted noise level included high impact activities. No high impact activities were occurring during the measurement. The intermittent nature of the measured works. The closest work area was located approximately 106 away. In the prediction model, the distance between the closest work area and the most affected facade is 24m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to Canterbury WE47 (2023) – Sugarhouse Rd, CAN WE47 (2023) LV Canterbury Rd, CAN WE47 (2023) Typical, CAN WE47 (2023) Driveway remediation, CAN WE47 (2023) Laydowns and CAN WE47 (2023) Site Compound. This was not observed during the measurement.	RENZO TONIN & ASSOCIATES	N&V Monitoring
	Noise	21/05/2023	2:49:00 AM	3:04:00 AM	Lakemba	Excavator with bucket attachment & EWP	15-19 Croydon Street	75	63	75	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The predicted noise level included high impact activities. No high impact activities were occurring during the measurement. The intermittent nature of the measured works. The closest work area was located approximately 26m away. In the prediction model, the distance between the closest work area and the most affected facade is 15m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to LAK WE47 (2023) Deliveries/mobilisation, LAK WE47 (2023) Typical, LAK WE47 (2023) Platform Saw and LAK WE47 (2023) Excavator with Jackhammer. This was not observed during the measurement.		
	Noise	21/05/2023	3:15:00 AM	3:30:00 AM	Lakemba	Excavator with bucket attachment & EWP	64 The Boulevarde	73	66	80	N/A	Y	N	The measured LAeq, 15min is lower than the predicted noise level. This can be attributed to: The predicted noise level included high impact activities. No high impact activities were occurring during the measurement. The intermittent nature of the measured works. The closest work area was located approximately 67m away. In the prediction model, the distance between the closest work area and the most affected facade is 25m. Less plant and equipment operating during the measurement compared to the Gatewave model. The predicted noise level also included multiple construction activities occurring concurrently, which included but not limited to LAK WE47 (2023) Deliveries/mobilisation, LAK WE47 (2023) Typical, LAK WE47 (2023) Platform Saw and LAK WE47 (2023) Excavator with Jackhammer. This was not observed during the measurement.		

Appendix C: Noise Monitoring Equipment Details and Calibration Certificates

Owner	Instrument	Make	Model	Serial Number	Date of Calibration	Place of Calibration
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-16217-E0	13 August 2021	NATacoustic
Renzo Tonin & Associates	Sound Level Meter	NTi	XL2	A2A-19156-E0	10 March 2022	NATacoustic
Renzo Tonin & Associates	Sound Level Calibrator	Bruel & Kjaer	Type 4231	3016756	05 July 2022	NATacoustic
Renzo Tonin & Associates	Sound Level Calibrator	Bruel & Kjaer	Type 4231	3009707	17 January 2023	NATacoustic

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
Sound Level Meter

Calibration Date	10/08/2021	**Job No**	RB893	**Operator**	AH
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	**Serial No**	A2A-16217-E0
Microphone Make	NTI	**Model**	MC230A	**Serial No**	#A17363
Preamplifier Make	NTI	**Model**	MA220	**Serial No**	#8388
Ext'n Cable Make	N/A	**Model**	N/A	**Serial No**	N/A
Accessories	N/A			**Firmware**	V4.20

SLM Type	1
Filters Class	1

Environmental Conditions	**Measured**	
	Start	**End**
Air Temp. (°C)	23.2	23.1
Rel. Humidity (%)	40.8	40.8
Air Pressure (kPa)	101.1	101.1

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:
The results of the tests and measurements included in this document are traceable via the test methods described under each test, and by the use of the above equipment, which has been 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.
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 61672-1:2013 and IEC 61260-1:2014 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 and IEC 61260-3:2016 cover only a limited subset of the specifications in IEC 61672-1:2013 and IEC 61260-1:2014.

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory Number 14966

Accredited for compliance with ISO/IEC 17025 - Calibration

Authorized Signatory:

Print Name: Ariel Michael Date: 13/08/2021

Template Document Name: RQT-05 SLM IEC61672 Verification (r73)

NATacoustic
Sound Level Meter Verification - Summary of Tests

Calibration Date	10/08/2021	**Job No**	RB893	**Operator**	AH
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				

1. Instrument Information & Reference Conditions

Instrument Make	NTI	**Model**	XL2	**Serial No**	A2A-16217-E0
Microphone Make	NTI	**Model**	MC230A	**Serial No**	#A17363
Preamplifier Make	NTI	**Model**	MA220	**Serial No**	#8388
Ext'n Cable Make	N/A	**Model**	N/A	**Serial No**	N/A
Accessories	N/A			**Firmware**	V4.20

Freq Weightings	**FLAT**	No	**A**	Yes	**C**	Yes	**Z**	Yes
Time Weightings	**Fast**	Yes	**Slow**	Yes	**Impulse**	Yes		

SLM Type	1
Filter Class	1

Instruction Manual is Available	Yes

2. Preliminary Inspection and Power Supply	**Logger Inspected**	Yes
	Calibration Equipment Okay	Yes
	Power Supply Ok (Start)	Yes
	Power Supply Ok (End)	Yes

		Measured	
3. Environmental Conditions	**Environmental Conditions**	**Start**	**End**
	Air Temp. (°C)	23.2	23.1
	Rel. Humidity (%)	40.8	40.8
	Air Pressure (kPa)	101.1	101.1
	Conforming	Yes	Yes

Test Description			**Value / Conforming**	**Uncert (+/-)**
4(a). Initial Calibration		**Calibration Frequency Hz**	1000.0	N/A
		Indicated Level Before Adjustment (dB)	114.0	0.11
		Indicated Level After Adjustment (dB)	114.0	0.11
		Stability During Continuous Operation (dB)	Yes	N/A
5(a). Self-Generated Noise, Microphone Installed		**A**	14.7	0.09
5(b). Self-Generated Noise, Electrical		**A**	11.6	0.09
		C	12.9	0.09
		Z	17.4	0.09
6. Acoustical Signal Test		**125 Hz**	Yes	0.42
		1 kHz	Yes	0.42
		8 kHz	Yes	0.60
7. Electrical Frequency Weighting		**A**	Yes	0.09
		C	Yes	0.09
		Z	Yes	0.09
8. Frequency & Time Weightings 1kHz	**8(a). Frequency Weighting**	**C**	Yes	0.09
		Z	Yes	0.09
		FLAT	N/A	0.09
	8(b). Time Weighting	**Slow**	Yes	0.09
		Leq	Yes	0.09
9(a). Level Linearity 8kHz (Increasing)		**Conforming**	Yes	0.13
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	Yes	0.13
		SEL/Leq	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
		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). Octave Band Filter Level Linearity 31.5Hz (Increasing)		**31.5Hz**	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). Octave Band Filter Level Linearity 1kHz (Decreasing)		**1kHz**	Yes	0.13
18(c). Octave Band Filter Level Linearity 16kHz (Decreasing)		**16kHz**	Yes	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 (1kHz)		**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)		**Conforming**	Yes	0.09
20(b). Octave Band Filter Lower Limit (Lowest Range)		**Conforming**	Yes	0.09
21(a). Third Octave Band Filter Relative Attenuation (≤31.5Hz)		**Conforming**	Yes	0.09
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		**Yes**	

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

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Template Document Name: RQT-05 SLM IEC61672 Verification (r73)

1(a). Instrument Information

Calibration Date	10/08/2021	Job No	RB893	Operator	AH

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

1. Instrument Information

Instrument Make	NTI	Model	XL2	Serial	A2A-16217-E0		
Microphone Make	NTI	Model	MC230A	Serial	#A17363	pF	15
Preampifier Make	NTI	Model	MA220	Serial	#8388		
Ext'n Cable Make	N/A	Model	N/A	Serial	N/A		
Accessories	N/A			Firmware	V4.20		

Freq Weightings	A	Yes
	C	Yes
	Z	Yes
	FLAT	No

Time Weightings	Fast	Yes
	Slow	Yes
	Impulse	Yes

Functions	Leq	Yes
	SEL	Yes
	Peak	Yes

Instrument Ranges	Range Name	Indicator Range		Primary Range	
		Low dB	High dB	Low dB	High dB
1	HIGH	40	140	60	134
2	MID	20	120	40	120
3	LOW	0	100	20	100
4					
5					
6					
7					
8					
9					
10					
Check List	OK				

Reference Range	MID
Ref. SPL @ 1kHz	114

Linearity Limits on Ref range	Low dB	High dB
1kHz Leq (A weighting)	40.0	120.0
4kHz Leq	40.0	120.0
8kHz Leq	40.0	120.0

Highest Range for 10(b),12,13	MID

SLM Class	1
Filter Class	1
Filter Base	2

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

Instruction Manual Title (Clause 3.1&3.2, IEC 61672-3:2013)	NTI XL2 Operating Manual
Version	2.5
Publication Date	2/11/2012
Source of Document (& Date of Download if Applicable)	N/A

Conforming	Yes

Pattern Evaluation Test Report (Clause 3.5, IEC 61672-3:2013)	
Reference Number or Page Number	
Publication Date	
Source of Document (& Date of Download if Applicable)	

Conforming	No

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1(b). Acoustic Corrections

	Absolute Corrections and Uncertainties									
Freq	Mic FF to Pressure		Case		Windscreen		Other *		Total	
(Hz)	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB
31.5	0.00								0.00	0.41
63	0.00								0.00	0.41
125	0.00								0.00	0.41
250	0.00								0.00	0.41
500	0.00								0.00	0.41
1k	0.00								0.00	0.41
2k	0.30								0.30	0.41
4k	0.70								0.70	0.41
8k	2.60								2.60	0.58
12.5k	6.00								6.00	0.64
16k	7.30								7.30	0.64

Source of Mic FF to Pressure Correction	NTi microphone corrections
Source of Case Correction	Not Available
Source of Windscreen Correction	Not Available
***Description of Other Correction**	N/A

Descriptions of Tests

1(b). Acoustical signal tests of a frequency weighting (IEC 61672-3)
(Clause 12.2)
Correction data shall account for:
- the equivalent free-field or random-incidence frequency response of the sound level meter if the source of sound or simulated sound is the pressure field in a multi-frequency sound calibrator, in a comparison coupler, or from an electrostatic actuator; and,
- if applicable, the average influence on the frequency response of a typical microphone of a windscreen and any accessories that are part of the configuration of the sound level meter for normal use.

(Clause 12.3)
Correction data shall be obtained from tables in the Instruction Manual for the sound level meter.
(Clause 12.4)
If the necessary correction data are not available from the Instruction Manual, data from the manufacturer of the microphone, multi-frequency sound calibrator, comparison coupler, or electrostatic actuator may then be used. This data shall be publicly available
(Clause 12.5)
The source for the free-field or random-incidence correction data shall be stated in the documentation for the results of the periodic tests. The source for the associated uncertainties of measurement shall be the same as the source for the corresponding correction data. If the uncertainties of the corresponding free-field correction data are not available, the applicable maximum-permitted uncertainties given in IEC 62585 shall be used in the calculation of the laboratory's total uncertainty budget.

NOTE: Where the uncertainties due to the "Mic FF to Pressure", "Case" or "Windscreen" are omitted in the table above, the following statement applies:

No information on the uncertainty of measurement, required by IEC 61672-3:2013, for the correction data given in the Instruction Manual or obtained from the manufacturer or supplier of the sound level meter, or the manufacturer of the microphone, or the manufacturer of the multi-frequency sound calibrator was provided in the Instruction Manual or made available by the manufacturer or supplier of the sound level meter. The uncertainty of measurement of the correction data was therefore assumed to be the maximum-permitted uncertainty given in IEC 62585 for the corresponding free-field correction data and for a coverage probability of 95 %.

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1(c). Electrical Corrections

	Absolute Corrections and Uncertainties									
Freq	Mic 0 deg FF Resp		Case		Windscreen		Other *		Total	
(Hz)	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB	dB	Uncert dB
31.5			0.00		0.00		0.00		0.00	0.41
63			0.00		0.00		0.00		0.00	0.41
125			0.00		0.00		0.00		0.00	0.41
250			0.00		0.00		0.00		0.00	0.41
500			0.00		0.00		0.00		0.00	0.41
1k			0.00		0.00		0.00		0.00	0.41
2k			0.00		0.00		0.00		0.00	0.41
4k			0.00		0.00		0.00		0.00	0.41
8k			0.00		0.00		0.00		0.00	0.58
12.5k			0.00		0.00		0.00		0.00	0.64
16k			0.00		0.00		0.00		0.00	0.64

Source of Mic 0 deg Free-field Response	Not Available
Source of Case Correction	Not Available
Source of Windscreen Correction	Not Available
*Description of Other Correction	N/A

Descriptions of Tests

1(c). Acoustical signal tests of a frequency weighting (IEC 61672-3)
(Clause 13.6)
For each frequency weighting and at each test frequency, corrections shall be applied to the relative frequency weightings determined in 13.5 to account for:
– the deviation of the free-field or random-incidence frequency response of the microphone in the reference direction from a uniform frequency response;
– the average effects of reflections from the case of the sound level meter and of diffraction of sound around the microphone and preamplifier; and,
– if applicable, the average influence on the frequency response of a typical microphone of a windscreen and any accessories that are part of the configuration of the sound level meter for normal use.
(Clause 13.7)
Corrections for the effects of reflections and diffraction and for the influence of the windscreen and windscreen accessories on the free-field or random-incidence frequency response shall be the same as used for the frequency-weighting tests with acoustical signals.

NOTE: Where the uncertainties due to the "Mic FF to Pressure", "Case" or "Windscreen" are omitted in the table above, the following statement applies:

No information on the uncertainty of measurement, required by IEC 61672-3:2013, for the correction data given in the Instruction Manual or obtained from the manufacturer or supplier of the sound level meter, or the manufacturer of the microphone, or the manufacturer of the multi-frequency sound calibrator was provided in the Instruction Manual or made available by the manufacturer or supplier of the sound level meter. The uncertainty of measurement of the correction data was therefore assumed to be the maximum-permitted uncertainty given in IEC 62585 for the corresponding free-field correction data and for a coverage probability of 95 %.

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2. Preliminary,3.Environmental Conditions & 4. Calibration

2. Preliminary Inspection and Power Supply

Instrument Inspected	Yes
Laboratory Calibration Equipment Ok	Yes
Power Supply Ok (Start)	Yes
Power Supply Ok (End)	Yes

3. Environmental Conditions

Environmental Conditions	Measured		Devn from Mid Limits		Uncert.	Expanded Deviation			Complies	Limits	
	Start	End	Start	End		Start	End	Tolerance		Min	Max
Air Temp. (°C)	23.2	23.1	0.2	0.1	0.5	0.70	0.60	3	Yes	20	26
Rel. Humidity (%)	40.8	40.8	-6.7	-6.7	4.8	11.50	11.50	22.5	Yes	25	70
Air Pressure (kPa)	101.1	101.1	8.6	8.6	0.63	9.23	9.23	12.5	Yes	80	105

Conforming	Yes

4(a). Initial Calibration

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Microphone / Windshield Correction	OFF
Polarization Voltage (V)	0
Microphone Sensitivity (mV/Pa)	44.1

B&K 4226 Calibrator Settings	
"Sound Field"	Pressure
"Microphone"	N/A
Calibration Level (Lin)	114
Calibration Frequency (Hz)	1000

Calibration	
Indicated Level before adjust. (dB)	114
Adjustment required	Yes
Indicated level after adjust. (dB)	114

4(b). Final Calibration

Level at conclusion of testing (dB)	114.0
Difference	0.0
Tolerance	± 0.1

Conforming	Yes

Uncertainty (+/-) dB	0.11

Descriptions of Tests

2. Preliminary Inspection and Power Supply (IEC 61672-3 Clause 5 "Preliminary Inspection" & Clause 6 "Power Supply")
Prior to any measurements, the sound level meter and all accessories shall be visually inspected, paying particular attention to damage to, or accumulation of foreign material on, the protection grid or diaphragm of the microphone. All relevant controls shall be operated to
ensure that they are in working order. If the controls, display, and other essential elements are not in proper working order, no periodic tests shall be performed.

For all tests, the sound level meter shall be powered from its preferred supply or a suitable alternative. Before and after conducting the set of tests with acoustical signals and before and after conducting the set of tests with electrical signals, the power supply for the sound level meter shall be checked by the method stated in the Instruction Manual to ensure that it is within the specified operating limits. If the voltage or the equivalent indication of the status of the power supply is not within the operating limits and the reason cannot be attributed to partially discharged batteries or an incorrect selection of the voltage of the public power supply, then no periodic tests shall be performed as a malfunction is indicated.

3. Environmental conditions (IEC 61672-3 Clause 7 "Environmental Conditions")
Periodic tests shall be performed within the following ranges of environmental conditions: 80 kPa to 105 kPa for static air pressure, 20 °C to 26 °C for air temperature and 25 % to 70 % for relative humidity. These conditions are recorded at the start and end of the testing.

4a. Calibration (IEC 61672-3 Clause 10 "Indication at the calibration check frequency")
The sound level meter shall be adjusted, if necessary, to indicate the required sound level for the environmental conditions under which the tests are performed. The indications of the sound level meter before and after adjustment shall be recorded.

4b. Long-term Stability (IEC 61672-3 Clause 15)
The long-term stability of a sound level meter is evaluated from the difference between the A-weighted sound levels indicated in response to steady 1 kHz signals applied at the beginning and end of a period of operation. For each indication, the level of the input signal shall be that which is required to display the reference sound pressure level on the reference level range for the first indication.

The period of continuous operation shall be between 25 min and 35 min during which any convenient set of tests that use electrical input signals are performed.

The measured difference between the initial and final indications of A-weighted sound level shall not exceed the acceptance limits given in IEC 61672-1.

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5. Self-Generated Noise

5(a). Self-Generated Noise, Microphone Installed

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	LOW
Measurement Function	Leq
Integration time (s)	30

Results		
Freq Wt	Observed	Quoted
A	14.7	16.6

Uncertainty (+/-) dB	0.09

Observed Values		
Leq	N/A	
14.7	1	
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	Avg	

5(b). Self-Generated Noise, Electrical

SLM Settings	
Time Weighting	Fast
SLM Range	LOW
Measurement Function	Leq
Integration time (s)	30

Observed Values						
Leq			N/A			
A	C	Z	Obs	A	C	Z
11.6	12.9	17.4	1			
			2			
			3			
			4			
			5			
			6			
			7			
			8			
			9			
			10			
			Avg			

Results		
Freq Wt	Observed	Quoted
A	11.6	12.4
C	12.9	13.5
Z	17.4	18.3-25.5

Uncertainty (+/-) dB	0.09

Descriptions of Tests

5(a) Self-Generated Noise, Microphone Installed (IEC 61672-3 Clause 11.1)
Measurements of the level of self-generated noise shall be made in a location that is available to the testing laboratory and where the level of background noise is minimized. Any supplied windscreen and windscreen accessory need not be installed around the microphone for measurement of the level of self-generated noise. The sound level meter shall be in the configuration submitted for periodic testing and with the most-sensitive level range and frequency-weighting A selected.

The indicated level of the A-weighted self-generated noise on the most-sensitive level range shall be recorded and reported. The level of self-generated noise is preferably measured as a time-averaged sound level with an averaging time of at least 30 s. Time-averaged sound level may be measured directly or calculated from an indication of sound exposure level and integration time. If time-averaged sound level cannot be determined, the time-weighted sound level from the average of ten observations taken at random over a 60 s interval shall be measured. If the time-weighted sound level is recorded, the S time weighting shall be used if available; otherwise the F time weighting shall be used.

5(b) Self-Generated Noise - Electrical (IEC 61672-3 Clause 11.2)
With the microphone replaced by the electrical input-signal device (or using the specified means of inserting electrical signals), and with the device terminated in the manner specified in the Instruction Manual for measurements of the level of self-generated noise, the indicated level of the time-averaged or time-weighted self-generated noise, measured by the same procedure as with the microphone installed, shall be recorded and reported for all frequency weightings and for the most-sensitive level range.

☑ Checked

6. Acoustical Signal Test

SLM Settings	
Time Weighting	Fast
Frequency Weighting	C
SLM Range	MID
Microphone Compensation Filter	OFF
B&K 4226 Calibrator Settings	
"Sound Field"	Pressure
"Microphone"	N/A
Reference Setting (Lin)	114

Freq	Observed Values			Mean Meter Reading	4226 calibrator corrections	Corrected Mean Readings	Pressure to Free Field	Case Effect Correction	Windscreen Effect Correction	Other Effect Correction	Equivalent Free Field	Response re 1kHz	C Weighting Response	Deviation from Expected	Tolerance		Conforming	Uncertainty		
															Type 1	Type 2		Total	Lab	Corrections
(Hz)	Set 1	Set 2	Set 3															(+/-) dB	(+/-) dB	(+/-) dB
31.5	110.8	110.8	110.8	110.80	0.10	110.90	0.00	0.00	0.00	0.00	110.90	-3.01	-3.00	-0.01	± 1.5	± 3.0	Yes	0.43	0.14	0.41
63	113.1	113.1	113.1	113.10	0.01	113.11	0.00	0.00	0.00	0.00	113.11	-0.80	-0.80	0.00	± 1.0	± 2.0	Yes	0.42	0.12	0.41
125	113.8	113.8	113.8	113.80	-0.02	113.78	0.00	0.00	0.00	0.00	113.78	-0.13	-0.20	0.07	± 1.0	± 1.5	Yes	0.42	0.12	0.41
250	114.0	114.0	114.0	114.00	-0.03	113.97	0.00	0.00	0.00	0.00	113.97	0.06	0.00	0.06	± 1.0	± 1.5	Yes	0.42	0.12	0.41
500	114.0	114.0	114.0	114.00	-0.03	113.97	0.00	0.00	0.00	0.00	113.97	0.06	0.00	0.06	± 1.0	± 1.5	Yes	0.42	0.12	0.41
1k	**114.0**	**113.9**	**114.0**	**113.97**	**-0.06**	**113.91**	**0.00**	**0.00**	**0.00**	**0.00**	**113.91**	**0.00**	**0.00**	0.00	± 0.7	± 1.0	Yes	0.42	0.11	0.41
2k	113.7	113.7	113.7	113.70	-0.01	113.69	0.30	0.00	0.00	0.00	113.99	0.08	-0.20	0.28	± 1.0	± 2.0	Yes	0.43	0.13	0.41
4k	112.8	112.6	112.6	112.67	-0.20	112.47	0.70	0.00	0.00	0.00	113.17	-0.74	-0.80	0.06	± 1.0	± 3.0	Yes	0.43	0.14	0.41
8k	106.8	106.8	106.9	106.83	-0.19	106.64	2.60	0.00	0.00	0.00	109.24	-4.66	-3.00	-1.66	+1.5; -2.5	± 5.0	Yes	0.60	0.15	0.58
12.5k	101.0	100.9	101.0	100.97	-0.10	100.87	6.00	0.00	0.00	0.00	106.87	-7.04	-6.20	-0.84	+2.0; -5.0	+5,-inf	Yes	0.68	0.21	0.64
16k	97.2	97.2	97.2	97.20	0.05	97.25	7.30	0.00	0.00	0.00	104.55	-9.36	-8.50	-0.86	+2.5; -16.0	+5,-inf	Yes	0.74	0.37	0.64

Description of Tests

6. Acoustical signal tests of a frequency weighting (IEC 61672-3 Clause 12)
The sound level meter shall be set for frequency-weighting C, if available, otherwise for frequencyweighting A. The frequency weighting for tests with acoustical signals shall be determined at 125 Hz, 1 kHz, and 8 kHz. However, for information, this laboratory tests from 31.5Hz to 16kHz.

For frequency-weighting tests using a multi-frequency sound calibrator, the sound pressure level in the coupler of the sound calibrator shall preferably be set to the reference sound pressure level at 1 kHz, but shall be in the range from 70 dB to 125 dB at all frequencies.

At the discretion of the laboratory, the sound level meter shall be set to measure F-timeweighted sound level or S-time-weighted sound level. As a minimum, two repetitions of the coupling and measurements shall be performed to give a total of at least three tests.

The relative frequency weighting, relative to the response at 1 kHz, shall be determined from the average equivalent free-field or random-incidence sound level at a test frequency minus the average equivalent free-field or random-incidence sound level at 1 kHz. (Clause 12.15)

☑ Checked

7. Electrical Frequency Weighting

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	20
Generator Frequency (Hz)	1k
SPL Reference (dB)	75
Integration Time (s)	N/A
Generator Output (mVrms)	52.60

Freq Hz	Output (mV)	Indication A	Output (mV)	Indication C	Output (mV)	Indication Z	Tolerance	
63	1073.95	74.9	57.67	74.9	52.60	74.9		
125	335.73	74.9	53.83	75.0	52.60	75.0		
250	141.57	74.9	52.60	75.0	52.60	75.0		
500	76.03	74.9	52.60	75.0	52.60	75.0		
1k	52.60	**75.0**	52.60	**75.0**	52.60	**75.0**		
2k	45.81	75.0	53.83	75.0	52.60	75.0		
4k	46.88	75.0	57.67	75.0	52.60	75.0		
8k	59.70	74.9	74.30	75.0	52.60	75.0		
16k	112.46	74.8	139.95	74.8	52.60	75.0		
Typical Microphone 0deg Free Field Response		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		**0.00**		**0.00**		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
Case Effect Correction		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		**0.00**		**0.00**		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
Windscreen Effect Correction		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		**0.00**		**0.00**		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
OtherCorrection		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		**0.00**		**0.00**		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
		0.00		0.00		0.00		
Equivalent Free Field		74.90		74.90		74.90		
		74.90		75.00		75.00		
		74.90		75.00		75.00		
		74.90		75.00		75.00		
		75.00		**75.00**		**75.00**		
		75.00		75.00		75.00		
		75.00		75.00		75.00		
		74.90		75.00		75.00		
		74.80		74.80		75.00	Type 1	Type 2
Response re 1kHz (Deviation from Expected)		-0.10		-0.10		-0.10	± 1.0	± 2.0
		-0.10		0.00		0.00	± 1.0	± 1.5
		-0.10		0.00		0.00	± 1.0	± 1.5
		-0.10		0.00		0.00	± 1.0	± 1.5
		0.00		**0.00**		**0.00**	± 0.7	± 1.0
		0.00		0.00		0.00	± 1.0	± 2.0
		0.00		0.00		0.00	± 1.0	± 3.0
		-0.10		0.00		0.00	+1.5; -2.5	± 5.0
		-0.20		-0.20		0.00	+2.5; -16.0	+5,-inf
Conforming		**Yes**		**Yes**		**Yes**		

Uncertainty (+/-) dB	0.09

Description of Tests

7. Electrical signal tests of frequency weightings (IEC 61672-3 Clause 13)
Frequency weightings shall be determined using steady sinusoidal electrical input signals for all frequency weightings for which design goals and acceptance limits are specified in IEC 61672-1 and which are provided in the sound level meter. The sound level meter shall be set to display F-time-weighted sound level.

On the reference level range and for each frequency weighting to be tested, the level of a 1 kHz input signal shall be adjusted to yield an indication that is 45 dB less than the upper boundary stated in the Instruction Manual for the linear operating range at 1 kHz on the reference level range.

At test frequencies other than 1 kHz, the level of the input electrical signal shall be determined as the level of the input signal at 1 kHz minus the exact design-goal response, given in IEC 61672-1 for the selected frequency weighting at the test frequency.

☑ Checked

8. Frequency & Time Weightings 1kHz

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	1k
SPL Reference (dB)	114.0
Output (mVrms)	469.9

8(a). Frequency Weightings 1kHz

Time Wt	Frequency Weighting				Tolerance	
Fast	A	C	Z	N/A		
1kHz	114.0	114.0	114.0		Type 1	Type 2
Difference		0.0	0.0		± 0.2	± 0.2

Conforming	Yes	Yes	N/A

Uncertainty (+/-) dB	0.09

8(b). Time Weightings 1kHz

Freq Wt	Time Weighting				Tolerance	
A	F	S	Leq			
1kHz	114.0	114.0	114.0		Type 1	Type 2
Difference		0.0	0.0		± 0.1	± 0.1

Conforming	Yes	Yes

Uncertainty (+/-) dB	0.09

Description of Tests

8. Frequency and time weightings at 1 kHz (IEC 61672-3 Clause 14)
For a steady sinusoidal electrical input signal at 1 kHz on the reference level range and with an input signal that yields an indication of the reference sound pressure level with frequency weighting A, the indications shall be recorded for frequency weightings C and Z, as available, with the sound level meter set to display F-time-weighted sound level, or timeaveraged sound level, as available. In addition, the indications with frequency weighting A shall be recorded with the sound level meter set to display F-time-weighted sound level, S-timeweighted sound level, and time-averaged sound level, as available.

The measured deviation of the indication of the sound level frequency weightings and time weightings shall not exceed the acceptance limits given in IEC 61672-1.

☑ Checked

9(a). Level Linearity 8kHz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	8k
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1898.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	± 0.8	± 1.1
21.0	104.0	104.0	0.0	± 0.8	± 1.1
16.0	109.0	109.0	0.0	± 0.8	± 1.1
11.0	114.0	114.0	0.0	± 0.8	± 1.1
10.0	115.0	115.0	0.0	± 0.8	± 1.1
9.0	116.0	116.0	0.0	± 0.8	± 1.1
8.0	117.0	117.0	0.0	± 0.8	± 1.1
7.0	118.0	118.0	0.0	± 0.8	± 1.1
6.0	119.0	119.0	0.0	± 0.8	± 1.1
5.0	120.0	120.0	0.0	± 0.8	± 1.1
4.0	121.0	121.0	0.0	± 0.8	± 1.1
3.0	122.0	122.0	0.0	± 0.8	± 1.1
2.0	123.0	123.0	0.0	± 0.8	± 1.1
1.0	124.0	124.0	0.0	± 0.8	± 1.1
0.0	125.0	Y		± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

9(a). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator over-range.

☑ Checked

9(b). Level Linearity 8kHz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	8k
SPL Reference Starting Point (dB)	94
Output (mVrms)	53.6
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	± 0.8	± 1.1
10.0	84.0	84.0	0.0	± 0.8	± 1.1
15.0	79.0	79.0	0.0	± 0.8	± 1.1
20.0	74.0	74.0	0.0	± 0.8	± 1.1
25.0	69.0	69.0	0.0	± 0.8	± 1.1
30.0	64.0	64.0	0.0	± 0.8	± 1.1
35.0	59.0	59.0	0.0	± 0.8	± 1.1
40.0	54.0	54.0	0.0	± 0.8	± 1.1
45.0	49.0	49.0	0.0	± 0.8	± 1.1
49.0	45.0	45.0	0.0	± 0.8	± 1.1
50.0	44.0	44.0	0.0	± 0.8	± 1.1
51.0	43.0	43.0	0.0	± 0.8	± 1.1
52.0	42.0	42.0	0.0	± 0.8	± 1.1
53.0	41.0	41.0	0.0	± 0.8	± 1.1
54.0	40.0	40.0	0.0	± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

9(b). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator under-range. However, if 20dB above noise floor is reached then no results are reported.

☑ Checked

10. Level Linearity with Level Ranges 1kHz

10(a). Level Linearity Including the Level Range (Reference Signal)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0
Generator Frequency (Hz)	1k
Reference SPL (dB)	114
Output (mVrms)	469.8

Settings	Level (dB)			Tolerance	
Range	Expected	Indicated	Difference	Type 1	Type 2
HIGH	114.0	114.0	0.0	± 0.8	± 1.1
MID	114.0	114.0	0.0	± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1
				± 0.8	± 1.1

Conforming	Yes

Uncertainty (+/-) dB	0.13

10(b). Level Linearity Including the Level range (5dB Above Under-range)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	HIGH
Generator & Attenuator Settings	
Attenuation (dB)	30
Generator Frequency (Hz)	1k
Reference SPL (dB)	65
Output (mVrms)	52.7

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	30.0	65.0	65.0	0.0	± 0.8	± 1.1
MID	50.0	45.0	45.0	0.0	± 0.8	± 1.1
LOW	70.0	25.0	25.0	0.0	± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1
					± 0.8	± 1.1

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

10. Level linearity including the level range control (IEC 61672-3 Clause 17)
For sound level meters that have more than one level range, tests of level linearity errors including errors introduced by the level range control shall be performed with steady sinusoidal electrical input signals at a frequency of 1 kHz and with the sound level meter set for frequency weighting A. For each test, signal levels shall be recorded as indications of F-time-weighted sound level or time-average sound level. (61672-3 Clause 17.1).

With the input signal level kept constant, the indicated signal level shall be recorded for all level ranges where the signal level is displayed. The indicated signal levels and the corresponding anticipated indications of signal levels shall be recorded. (61672-3 Clause 17.3).

For each level range, the level of the input signal shall then be adjusted to yield a signal level that is expected to be 5 dB greater than the signal level that first causes an indication of under-range on a level range. The indicated signal levels and the corresponding anticipated levels shall be recorded. (61672-3 Clause 17.4).

Level linearity deviations shall be calculated as an indicated signal level minus the corresponding anticipated signal level. Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1.

☑ Checked

11. Toneburst Response

11(a). Fast ToneBurst

SLM Settings - Fast	
Time Weighting	Fast
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	4k
dB Down from Linearity Limit	3
Reference SPL (dB)	117.0
Output (mVrms)	592.8

Toneburst (ms)	# Cycles	LAFMax (dB)			Tolerance	
		Expected	Indicated	Difference	Type 1	Type 2
200	800	116.0	116.0	0.0	± 0.5	± 1.0
2	8	99.0	99.0	0.0	+ 1.0; -1.5	+ 1.0; -2.5
0.25	1	90.0	90.0	0.0	+ 1.0; -3.0	+ 1.5; -5.0

Conforming	Yes

Uncertainty (+/-) dB	0.09

11(b). Slow ToneBurst

SLM Settings - Slow	
Time Weighting	Slow
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	4k
dB Down from Linearity Limit	3
Reference SPL (dB)	117.0
Output (mVrms)	592.8

Toneburst (ms)	# Cycles	LASMax (dB)			Tolerance	
		Expected	Indicated	Difference	Type 1	Type 2
200	800	109.6	109.6	0.0	± 0.5	± 1.0
2	8	90.0	90	0.0	+ 1.0; -3.0	+ 1.0; -5.0

Conforming	Yes

Uncertainty (+/-) dB	0.09

11(c). SEL ToneBurst

SLM Settings - SEL/Leq	
Function	SEL
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	4k
dB Down from Linearity Limit	3
Reference SPL (dB)	117.0
Output (mVrms)	592.8
Integration Time (if SEL not available) (s)	

Toneburst (ms)	# Cycles	SEL				Tolerance	
		Indicated	Calc'd	Expected	Difference	Type 1	Type 2
200	800	110.0	110.0	110.0	0.0	± 0.5	± 1.0
2	8	90.0	90.0	90.0	0.0	+ 1.0; -1.5	+ 1.0; -2.5
0.25	1	81.0	81.0	81.0	0.0	+ 1.0; -3.0	+ 1.5; -5.0

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

11. Toneburst response (IEC 61672-3 Clause 18)
The response of the sound level meter to short-duration signals shall be tested on the reference level range with 4 kHz tonebursts. The sound level meter shall be set to frequency weighting A. (61672-3 Clause 18.1).

For the toneburst signals, indications of the sound level meter to be recorded are maximum F-time-weighted sound level, maximum S-time-weighted sound level and sound exposure level, as applicable.

The level of the steady input signal shall be adjusted to display an F-time-weighted, Stime-weighted, or time-averaged sound level, as appropriate, that is 3 dB less than the upper boundary stated in the Instruction Manual for the linear operating range at 4 kHz on the reference level range. (61672-3 Clause 18.4).

Tonebursts are tested at 200ms, 2ms and, 0.25ms durations (the latter for Fast and SEL only) and the LMax or SEL recorded.

Measured deviations of the measured toneburst responses from the corresponding reference toneburst responses given in IEC 61672-1 shall not exceed the applicable

☑ Checked

12. Peak C sound level

12(a). Peak C 8 KHz

SLM Settings	
Time Weighting	Fast
Frequency Weighting	C
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	8k
Reference SPL (dB)	112.0
Output (mVrms)	530.2

Test Signal	dB LCpeak Hold				Tolerance	
8 kHz	Indication	O'Load?	Expected	Difference	Type 1	Type 2
1 Cycle	115.4	No	115.4	0.0	± 2.0	± 3.0

Conforming	Yes

Uncertainty (+/-) dB	0.09

12(b). Peak C 500 Hz

SLM Settings	
Time Weighting	Fast
Frequency Weighting	C
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	500
Reference SPL (dB)	112.0
Output (mVrms)	372.4

Test Signal	dB LCpeak Hold				Tolerance	
500 Hz	Indication	O'Load?	Expected	Difference	Type 1	Type 2
One +ve 1/2 cycle	114.4	No	114.4	0.0	± 1.0	± 2.0
One -ve 1/2 cycle	114.4	No	114.4	0.0	± 1.0	± 2.0

Conforming	Yes

Uncertainty (+/-) dB	0.09

Description of Tests

12. Peak C sound level (IEC 61672-3 Clause 19)
Indications of C-weighted peak sound level shall be tested on the least-sensitive level range. The test signals consist of (a) a single complete cycle of an 8 kHz sinusoid starting and stopping at zero crossings and (b) positive and negative half cycles of a 500 Hz sinusoid that also start and stop at zero crossings.

The level of the steady sinusoidal 8 kHz electrical input signal, from which a single complete cycle is extracted, shall be adjusted to yield an indication of C-weighted, F-timeweighted sound level, or C-weighted, time-averaged sound level, that is 8 dB less than the upper boundary stated in the Instruction Manual for the peak level range at 8 kHz on the leastsensitive level range. The indication of steady sound level shall be recorded.

The indication of C-weighted peak sound level in response to a complete cycle of the 8 kHz signal shall be recorded. Application of the complete-cycle 8 kHz signal shall not cause indication of an overload condition.

The level of the steady sinusoidal 500 Hz electrical input signal, from which positive and negative half cycles are extracted, shall be adjusted to yield an indication of C-weighted, Ftime-weighted sound level, or C-weighted, time-averaged sound level, that is 8 dB less than the upper boundary stated in the Instruction Manual for the peak level range on the least-sensitive level range. The indications of steady sound levels shall be recorded.

The indications of C-weighted peak sound level in response to a single positive halfcycle 500 Hz signal and to a single negative half-cycle 500 Hz signal shall be recorded and reported. Applications of the 500 Hz half-cycle signals shall not cause indications of an overload condition.

☑ Checked

13. Overload indication

SLM Settings	
Function	Leq
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	4k
Reference SPL (dB)	119.0
Output (mVrms)	746.5

	Half-Cycle Signal			Tolerance	
	Positive	Negative	Difference	Type 1	Type 2
Level (dB)	127.0	127.1	-0.1	± 1.5	± 1.5
Generator Output (mVrms)	1886.0	1887.0			

Conforming	Yes

Uncertainty (+/-) dB	0.09

Overload Indicated	No
Overload Indicator Latches	N/A

Conforming	N/A

Description of Tests

13. Overload Indication (IEC 61672-3 Clause 20)
The test of overload indication shall only be performed for sound level meters capable of displaying time-average sound level.

Overload indication shall be tested on the least-sensitive level range with the sound level meter set to display A-weighted, time-average sound level. Positive and negative one-half-cycle sinusoidal electrical signals at a frequency of 4 kHz shall be used.(IEC 61672-3 Clause 20.2)

The test shall begin at an indicated time-averaged level for the steady input signal that corresponds to 1 dB less than the upper boundary specified for the linear operating range at 4 kHz. The level of the single positive one-half-cycle input signal shall be increased to the first indication of overload, to a resolution of 0.1 dB. The process shall be repeated for the single negative one-half-cycle signal. The levels of the single one-half-cycle input signals that produced the first indications of overload shall be recorded to a resolution of 0.1 dB.

It shall be verified that the overload indicator latches on as specified in IEC 61672-1 when an overload condition occurs.

☑ Checked

14. High-level Stability

SLM Settings	
Time Weighting	F
Frequency Weighting	A
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	0.0
Generator Frequency (Hz)	1k
Reference SPL (dB)	119.0
Output (mVrms)	836.4

Time Period to Apply Signal (min)	5.0
Record SPL at Conclusion of Time Period (dB)	119.0
Difference	0.0
Tolerance	± 0.1

Conforming	Yes

Uncertainty (+/-) dB	0.09

Description of Tests

14. High-level Stability (IEC 61672-3 Clause 21)
The ability of a sound level meter to operate continuously in response to high signal levels without significant change in sensitivity is evaluated from the difference between the Aweighted sound levels indicated in response to a steady 1 kHz electrical signal at the beginning and end of a 5 min period of continuous exposure to the signal.

The level of the steady electrical input signal shall be that which is required to display the sound level that is 1 dB less than the upper boundary of the 1 kHz linear operating range on the least-sensitive level range.

☑ Checked

15(a). Octave Band Filter Relative Attenuation (≤2kHz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Range	HIGH
Set dB Below Full Scale	-1
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

Ratio	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	4 Hz	8 Hz	16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz		
0.06				37.5					48.3			
0.13				48.2					50.3			
0.25				61.7					54.2			
0.50				74.1					70.9			
0.71												
0.77				132.9					133.0			
0.84				132.9					133.0			
0.92				132.8					133.0			
1.00				**132.9**					**133.0**			
1.09				132.9					133.0			
1.19				132.9					133.0			
1.30				132.9					133.0			
1.41												
2.00				45.8					40.0			
4.00				41.0					33.8			
8.00				29.0					34.6			
16.00				24.4					33.1		Class 1	Class 2
Attenuation dB				95.4					84.7		+70/inf	+60/inf
				84.7					82.7		+60/inf	+54/inf
				71.2					78.8		+40.5/inf	+39.5/inf
				58.8					62.1		+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
				0.0					0.0		-0.4/+1.4	-0.6/+1.7
				0.0					0.0		-0.4/+0.7	-0.6/+0.9
				0.1					0.0		-0.4/+0.5	-0.6/+0.7
				0.0					**0.0**		-0.4/+0.4	-0.6/+0.6
				0.0					0.0		-0.4/+0.5	-0.6/+0.7
				0.0					0.0		-0.4/+0.7	-0.6/+0.9
				0.0					0.0		-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
				87.1					93.0		+16.6/inf	+15.6/inf
				91.9					99.2		+40.5/inf	+39.5/inf
				103.9					98.4		+60/inf	+54/inf
				108.5					99.9		+70/inf	+60/inf

Ins Loss				-0.1					0.0	
Conforming	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	Yes	N/A

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

15(a) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☑ Checked

15(b). Octave Band Filter Relative Attenuation (>2kHz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	HIGH
Set dB Below Full Scale	-1.0
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

Ratio	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	4kHz	8kHz	16kHz	32kHz								
0.06			43.4									
0.13			50.7									
0.25			51.1									
0.50			70.7									
0.71												
0.77			133.0									
0.84			133.0									
0.92			132.9									
1.00			**133.0**									
1.09			133.0									
1.19			133.0									
1.30			133.0									
1.41												
2.00			48.8									
4.00			43.1									
8.00			41.7									
16.00			51.3								Class 1	Class 2
Attenuation dB			89.6								+70/inf	+60/inf
			82.3								+60/inf	+54/inf
			81.9								+40.5/inf	+39.5/inf
			62.3								+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
			0.0								-0.4/+1.4	-0.6/+1.7
			0.0								-0.4/+0.7	-0.6/+0.9
			0.1								-0.4/+0.5	-0.6/+0.7
			0.0								-0.4/+0.4	-0.6/+0.6
			0.0								-0.4/+0.5	-0.6/+0.7
			0.0								-0.4/+0.7	-0.6/+0.9
			0.0								-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
			84.2								+16.6/inf	+15.6/inf
			89.9								+40.5/inf	+39.5/inf
			91.3								+60/inf	+54/inf
			81.7								+70/inf	+60/inf
Ins Loss			0.0									
Conforming	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

15(b) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☑ Checked

16. Octave Band Filter Relative Attenuation at Midband Frequency

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Reference Range	MID
Attenuator dB	0.0
Reference SPL 1kHz	94.0
Output mVrms	47.1

	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	**4 Hz**	**8 Hz**	**16 Hz**	**31.5 Hz**	**63 Hz**	**125 Hz**	**250 Hz**	**500 Hz**	**1 kHz**	**2 kHz**	**Class 1**	**Class 2**
Measured			94.3	93.9	94.0	94.1	94.0	94.0	94.0	94.0		
Ins Loss			0.3	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	-0.4/+0.4	-0.6/+0.6
Conforming	**N/A**	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		

Freq	**4kHz**	**8kHz**	**16kHz**	**32kHz**							**Class 1**	**Class 2**
Measured	94.0	94.0	94.0									
Ins Loss	0.0	0.0	0.0								-0.4/+0.4	-0.6/+0.6
Conforming	**Yes**	**Yes**	**Yes**	**N/A**								

Uncert (+/-) dB	**0.09**

Description of Test

16. Octave Band Filter Relative Attenuation at Midband Frequency (IEC 61260-3 Clause 10.2)

10.2 Tests of relative attenuation at midband frequency
10.2.1 The relative attenuation at the exact midband frequency shall be measured for every filter in a set of filters. The relative attenuation $\Delta A(\Omega)$ at any midband frequency is determined from Formula (8) given in IEC 61260-1:2014. The reference level range shall be selected for the test. The level of the test signal shall be equal to the reference input signal level.
10.2.2 The measured relative attenuation shall not exceed the acceptance limits ± 0,4 dB for Class 1 filters or ± 0,6 dB for class 2 filters as specified in 5.10 in IEC 61260-1:2014.

Interpretation: The yellow cells are the observed values. The "Ins Loss" are the actual values of attenuation at the filter centre frequencies. The "Conforming" cells demonstrate compliance with the Tolerance limits depending upon the Class of filter.

☑ Checked

17(a). Octave Band Filter Level Linearity 31.5Hz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	31.5
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1695.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.0	0.0	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

17(a). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

17(b). Octave Band Filter Level Linearity 1kHz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	1k
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1667.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.1	0.1	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

17(b). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

17(c). Octave Band Filter Level Linearity 16kHz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	16k
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1695.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.0	0.0	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

17(c). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

18(a). Octave Band Filter Level Linearity 31.5Hz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	31.5
SPL Reference Starting Point (dB)	94
Output (mVrms)	47.8
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.1	0.1	±0.7	±0.9
54.0	40.0	40.1	0.1	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

18(a). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

18(b). Octave Band Filter Level Linearity 1kHz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	1kHz
SPL Reference Starting Point (dB)	94
Output (mVrms)	47.1
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.0	0.0	±0.7	±0.9
54.0	40.0	40.0	0.0	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

18(b). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

18(c). Octave Band Filter Level Linearity 16kHz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	16kHz
SPL Reference Starting Point (dB)	94
Output (mVrms)	46.8
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.0	0.0	±0.7	±0.9
54.0	40.0	40.0	0.0	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

18(c). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

19. Octave Level Ranges

19(a). Octave Level Linearity Including the Level range (31.5Hz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	31.5
Reference SPL (dB)	94
Output (mVrms)	151.2

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

19(b). Octave Level Linearity Including the Level range (1kHz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	1k
Reference SPL (dB)	94
Output (mVrms)	148.6

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

19(c). Octave Level Linearity Including the Level range (16kHz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	16k
Reference SPL (dB)	94
Output (mVrms)	147.9

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

19. Filter Level linearity including the level range control (IEC 61260-3 Clause 11.9)

11.9 For the same three filters as selected above, test each available level range in the following way: based on the same reference level, adjust the input level to be 30 dB below upper boundary of the linear operating range for each of the selected range settings. The measured level linearity deviation shall not exceed the acceptance limits given in 5.13.3 and 5.13.4 of IEC 61260-1:2014

The three filter frequencies are 31.5Hz, 1kHz and 16kHz.

The level linearity differences are calculated as the indicated signal level minus the corresponding expected signal level.

☑ Checked

20. Octave Band Filter Lower Limit

20(a). Octave Band Filter Lower Limit (Reference Range)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Reference Range	MID
Lower Limit for the Range	40

	1	2	3	4	5	6	7	8	9	10
Freq	4 Hz	8 Hz	16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Measured		17.0	13.3	12.2	9.2	5.7	5.5	5.1	6.8	8.7
Conforming	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	4kHz	8kHz	16kHz	32kHz						
Measured	11.1	14.0	17.3							
Conforming	Yes	Yes	Yes	N/A						

Conforming	Yes

Uncert (+/-) dB	0.09

20(b). Octave Band Filter Lower Limit (Lowest Range)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Lowest Range	LOW
Lower Limit for the Range	20

	1	2	3	4	5	6	7	8	9	10
Freq	4 Hz	8 Hz	16 Hz	31.5 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz
Measured		13.2	13.1	9.4	7.1	4.9	3.8	2.3	2.0	1.7
Conforming	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	4kHz	8kHz	16kHz	32kHz						
Measured	2.2	3.7	6.0							
Conforming	Yes	Yes	Yes	N/A						

Conforming	Yes

Uncert (+/-) dB	0.09

20. Octave Band Filter Lower LImit (IEC 61260-3 Clause 12)

12.2 Short-circuit the input terminal or use similar means to ensure that the level of the input signal is below the lower limit of the specified linear operating range. Record the output level from each filter in the set. The output level shall not exceed the specified lower limit for the appropriate filter and range.

Interpretation: The yellow cells are the observed values. The measured value must not exceed the Lower LImit for the Range.

☑ Checked

21(a). Third Octave Band Filter Relative Attenuation (≤31.5Hz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	HIGH
Set dB Below Full Scale	-1
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

31.5	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	4Hz	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz		
5.75										53.2		
10.18										61.2		
16.56										69.7		
24.12										69.6		
27.84												
28.73										132.4		
29.59										132.9		
30.44										132.9		
31.25										**132.8**		
32.09										132.9		
33.00										132.9		
33.99										132.1		
35.08												
40.49										66.2		
58.97										25.9		
95.92										22.8		
169.84										19.9	Class 1	Class 2
Attenuation dB										79.6	+70/inf	+60/inf
										71.6	+60/inf	+54/inf
										63.1	+40.5/inf	+39.5/inf
										63.2	+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
										0.4	-0.4/+1.4	-0.6/+1.7
										-0.1	-0.4/+0.7	-0.6/+0.9
										-0.1	-0.4/+0.5	-0.6/+0.7
										0.0	-0.4/+0.4	-0.6/+0.6
										-0.1	-0.4/+0.5	-0.6/+0.7
										-0.1	-0.4/+0.7	-0.6/+0.9
										0.7	-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
										66.6	+16.6/inf	+15.6/inf
										106.9	+40.5/inf	+39.5/inf
										110.0	+60/inf	+54/inf
										112.9	+70/inf	+60/inf
Ins Loss										**-0.2**		
Conforming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes		

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

21(a) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz unless the client expands this range. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☐ Checked

21(b). Third Octave Band Filter Relative Attenuation (40Hz-315Hz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	HIGH
Set dB Below Full Scale	-1.0
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

Ratio	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz		
0.18									48.0			
0.33									54.5			
0.53									64.4			
0.77									70.9			
0.89												
0.92									132.7			
0.95									133.1			
0.97									133.0			
1.00									**133.0**			
1.03									133.0			
1.06									133.0			
1.09									132.3			
1.12												
1.30									58.1			
1.89									51.7			
3.07									25.7			
5.43									23.6		Class 1	Class 2
Attenuation dB									85.0		+70/inf	+60/inf
									78.5		+60/inf	+54/inf
									68.6		+40.5/inf	+39.5/inf
									62.1		+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
									0.3		-0.4/+1.4	-0.6/+1.7
									-0.1		-0.4/+0.7	-0.6/+0.9
									0.0		-0.4/+0.5	-0.6/+0.7
									0.0		-0.4/+0.4	-0.6/+0.6
									0.0		-0.4/+0.5	-0.6/+0.7
									0.0		-0.4/+0.7	-0.6/+0.9
									0.7		-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
									74.9		+16.6/inf	+15.6/inf
									81.3		+40.5/inf	+39.5/inf
									107.3		+60/inf	+54/inf
									109.4		+70/inf	+60/inf
Ins Loss									**0.0**			
Conforming	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A		

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

21(b) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz unless the client expands this range. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☑ Checked

21(c). Third Octave Band Filter Relative Attenuation (400Hz-3.15kHz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	HIGH
Set dB Below Full Scale	-1.0
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

Ratio	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz		
0.18					46.3							
0.33					46.7							
0.53					58.2							
0.77					70.6							
0.89												
0.92					132.7							
0.95					133.0							
0.97					133.0							
1.00					**133.0**							
1.03					133.0							
1.06					133.0							
1.09					132.2							
1.12												
1.30					58.1							
1.89					51.7							
3.07					29.1							
5.43					28.9						Class 1	Class 2
Attenuation dB					86.7						+70/inf	+60/inf
					86.3						+60/inf	+54/inf
					74.8						+40.5/inf	+39.5/inf
					62.4						+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
					0.3						-0.4/+1.4	-0.6/+1.7
					0.0						-0.4/+0.7	-0.6/+0.9
					0.0						-0.4/+0.5	-0.6/+0.7
					0.0						-0.4/+0.4	-0.6/+0.6
					0.0						-0.4/+0.5	-0.6/+0.7
					0.0						-0.4/+0.7	-0.6/+0.9
					0.8						-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
					74.9						+16.6/inf	+15.6/inf
					81.3						+40.5/inf	+39.5/inf
					103.9						+60/inf	+54/inf
					104.1						+70/inf	+60/inf

Ins Loss					0.0					
Conforming	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

21(c) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz unless the client expands this range. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☑ Checked

21(d). Third Octave Band Filter Relative Attenuation (≥4kHz)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	HIGH
Set dB Below Full Scale	-1.0
Attenuator dB	0.0
Reference SPL 1kHz	133.0
Output mVrms	4194.0
Noise Floor dB	-99.0

Ratio	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz	20kHz	25kHz	31.5kHz		
0.18							46.4					
0.33							48.3					
0.53							52.5					
0.77							70.5					
0.89												
0.92							132.6					
0.95							133.0					
0.97							133.0					
1.00							**133.0**					
1.03							133.0					
1.06							132.9					
1.09							132.2					
1.12												
1.30							58.4					
1.89							43.2					
3.07							38.9					
5.43							37.0				Class 1	Class 2
Attenuation dB							86.6				+70/inf	+60/inf
							84.7				+60/inf	+54/inf
							80.5				+40.5/inf	+39.5/inf
							62.5				+16.6/inf	+15.6/inf
											-0.4/+5.3	-0.6/+5.8
							0.4				-0.4/+1.4	-0.6/+1.7
							0.0				-0.4/+0.7	-0.6/+0.9
							0.0				-0.4/+0.5	-0.6/+0.7
							0.0				-0.4/+0.4	-0.6/+0.6
							0.0				-0.4/+0.5	-0.6/+0.7
							0.1				-0.4/+0.7	-0.6/+0.9
							0.8				-0.4/+1.4	-0.6/+1.7
											-0.4/+5.3	-0.6/+5.8
							74.6				+16.6/inf	+15.6/inf
							89.8				+40.5/inf	+39.5/inf
							94.1				+60/inf	+54/inf
							96.0				+70/inf	+60/inf
Ins Loss							**0.0**					
Conforming	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A	N/A	N/A		

Uncert (+/-) dB	≤80dB	0.09	>80dB	0.46

Description of Test

21(d) Octave Filter (IEC 61260-3 Clause 13)

13 Measurement of relative attenuation
13.1 The relative attenuation on the reference level range shall be tested for the same three filters as selected in Clause 11.
13.2 The measurements of relative attenuation are made as the response to constant amplitude sinusoidal signals at various frequencies. The level of the input signals shall be (1 ± 0,1) dB below the specified upper boundary of the linear operating range.
13.6 The measured relative attenuation shall not exceed the acceptance limits given in Table 1 for the appropriate class of filter.

Interpretation: The three filters specified in "Clause 11" are 31.5Hz, 1kHz and 16kHz unless the client expands this range. The limits in "Table 1" are the Tolerance values shown in green above. The yellow cells are the observed values. The "Attenuation dB" cells are the attenuation values of each filter with the filter's centre frequency attenuation assumed to be zero (i.e. the relative attenuation). The "Ins Loss" are the actual values of attenuation at the filter centre frequencies.

☑ Checked

22. Third Octave Band Filter Relative Attenuation at Midband Frequency

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Reference Range	MID
Attenuator dB	0.0
Reference SPL 1kHz	94.0
Output mVrms	47.1

	1	2	3	4	5	6	7	8	9	10	Tolerance	
Freq	**4Hz**	**5Hz**	**6.3Hz**	**8Hz**	**10Hz**	**12.5Hz**	**16Hz**	**20Hz**	**25Hz**	**31.5Hz**	**Class 1**	**Class 2**
Measured					94.4	94.4	94.4	94.1	93.9	93.9		
Ins Loss					0.4	0.4	0.4	0.1	-0.1	-0.1	-0.4/+0.4	-0.6/+0.6
Conforming	**N/A**	**N/A**	**N/A**	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		

Freq	**40Hz**	**50Hz**	**63Hz**	**80Hz**	**100Hz**	**125Hz**	**160Hz**	**200Hz**	**250Hz**	**315Hz**	**Class 1**	**Class 2**
Measured	93.9	93.9	94.0	94.0	94.0	94.1	94.1	94.0	94.0	94.1		
Ins Loss	-0.1	-0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	-0.4/+0.4	-0.6/+0.6
Conforming	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		

Freq	**400Hz**	**500Hz**	**630Hz**	**800Hz**	**1kHz**	**1.25kHz**	**1.6kHz**	**2kHz**	**2.5kHz**	**3.15kHz**	**Class 1**	**Class 2**
Measured	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0		
Ins Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.4/+0.4	-0.6/+0.6
Conforming	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**		

Freq	**4kHz**	**5kHz**	**6.3kHz**	**8kHz**	**10kHz**	**12.5kHz**	**16kHz**	**20kHz**	**25kHz**	**31.5kHz**	**Class 1**	**Class 2**
Measured	94.0	94.0	94.0	94.0	94.0	94.0	94.1	94.1				
Ins Loss	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1			-0.4/+0.4	-0.6/+0.6
Conforming	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**	**N/A**		

Uncert (+/-) dB	**0.09**

Description of Test

22. Octave Band Filter Relative Attenuation at Midband Frequency (IEC 61260-3 Clause 10.2)

10.2 Tests of relative attenuation at midband frequency
10.2.1 The relative attenuation at the exact midband frequency shall be measured for every filter in a set of filters. The relative attenuation $\Delta A(\Omega)$ at any midband frequency is determined from Formula (8) given in IEC 61260-1:2014. The reference level range shall be selected for the test. The level of the test signal shall be equal to the reference input signal level.
10.2.2 The measured relative attenuation shall not exceed the acceptance limits ± 0,4 dB for Class 1 filters or ± 0,6 dB for class 2 filters as specified in 5.10 in IEC 61260-1:2014.

Interpretation: The yellow cells are the observed values. The "Ins Loss" are the actual values of attenuation at the filter centre frequencies. The "Conforming" cells demonstrate compliance with the Tolerance limits depending upon the Class of filter.

☑ Checked

23(a). Third Octave Band Filter Level Linearity 31.5Hz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	31.5
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1695.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.0	0.0	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

23(a). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

23(b). Third Octave Band Filter Level Linearity 1kHz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	1k
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1667.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.0	0.0	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

23(b). Filter Level linearity on the reference level range (IEC 61260-3 Clause 11)

The level linearity shall be tested for three filters in a set of filters. For a set of filters covering the audible range of frequencies, it is recommended to test filters with frequencies close to 31.5 Hz,1 kHz and 16 kHz.

The test shall be performed on the reference level range for levels from the specified lower boundary of the specified linear operating range up to a level where the overload indicator displays an overload. Adjust the level of the input signal with steps that are not greater than 5 dB. The difference between successive steps of the input signal level shall be reduced to 1 dB when the distance to the lower or upper boundaries of a linear operating range is less than 5 dB and when the level is above the upper boundary. The boundaries are as stated in the instruction manual for the filter. If no overload is displayed, the filter does not conform to the requirements.

The measured level linearity deviation shall not exceed the acceptance limits given in 5.13 in IEC 61260-1:2014 for all measured levels between the lower boundary of the linear operating range, as stated in the instruction manual for the filter, and up to the highest level, measured as described above, without an overload indication.

An overload shall not be indicated if the level of the input signal is below the stated upper boundary of each appropriate linear operating range.

"Y" means indicator over-range.

☑ Checked

23(c). Third Octave Band Filter Level Linearity 16kHz (Increasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Over SLM Range	5
Attenuation (dB)	31.0
Generator Frequency (Hz)	16k
SPL Reference Starting Point (dB)	94.0
Output (mVrms)	1695.0
Noise Floor (dB)	-99.0

Increasing level to Overload				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
26.0	99.0	99.0	0.0	±0.5	±0.6
21.0	104.0	104.0	0.0	±0.5	±0.6
16.0	109.0	109.0	0.0	±0.5	±0.6
11.0	114.0	114.0	0.0	±0.5	±0.6
10.0	115.0	115.0	0.0	±0.5	±0.6
9.0	116.0	116.0	0.0	±0.5	±0.6
8.0	117.0	117.0	0.0	±0.5	±0.6
7.0	118.0	118.0	0.0	±0.5	±0.6
6.0	119.0	119.0	0.0	±0.5	±0.6
5.0	120.0	120.0	0.0	±0.5	±0.6
4.0	121.0	121.0	0.0	±0.5	±0.6
3.0	122.0	122.0	0.0	±0.5	±0.6
2.0	123.0	123.0	0.0	±0.5	±0.6
1.0	124.0	124.0	0.0	±0.5	±0.6
0.0	125.0	125.0	0.0	±0.5	±0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

23(c). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator over-range.

☑ Checked

24(a). Third Octave Band Filter Level Linearity 31.5Hz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	31.5
SPL Reference Starting Point (dB)	94
Output (mVrms)	47.8
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.1	0.1	±0.7	±0.9
54.0	40.0	40.1	0.1	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

24(a). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator under-range. However, if 20dB above noise floor is reached then no results are reported.

☑ Checked

24(b). Third Octave Band Filter Level Linearity 1kHz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	1kHz
SPL Reference Starting Point (dB)	94
Output (mVrms)	47.1
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.0	0.0	±0.7	±0.9
54.0	40.0	40.0	0.0	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

24(b). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator under-range. However, if 20dB above noise floor is reached then no results are reported.

☑ Checked

24(c). Third Octave Band Filter Level Linearity 16kHz (Decreasing)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Select dB Under SLM Range	0
Attenuation (dB)	0.0
Generator Frequency (Hz)	16kHz
SPL Reference Starting Point (dB)	94
Output (mVrms)	46.8
Noise Floor (dB)	-99.0

Decreasing level to Underange				Tolerance	
Atten	Expected	Indicator	Diff	Type 1	Type 2
5.0	89.0	89.0	0.0	±0.5	±0.6
10.0	84.0	84.0	0.0	±0.5	±0.6
15.0	79.0	79.0	0.0	±0.7	±0.9
20.0	74.0	74.0	0.0	±0.7	±0.9
25.0	69.0	69.0	0.0	±0.7	±0.9
30.0	64.0	64.0	0.0	±0.7	±0.9
35.0	59.0	59.0	0.0	±0.7	±0.9
40.0	54.0	54.0	0.0	±0.7	±0.9
45.0	49.0	49.0	0.0	±0.7	±0.9
49.0	45.0	45.0	0.0	±0.7	±0.9
50.0	44.0	44.0	0.0	±0.7	±0.9
51.0	43.0	43.0	0.0	±0.7	±0.9
52.0	42.0	42.0	0.0	±0.7	±0.9
53.0	41.0	41.0	0.0	±0.7	±0.9
54.0	40.0	40.0	0.0	±0.7	±0.9

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

24(c). Level linearity on the reference level range (IEC 61672-3 Clause 16)
Level linearity shall be tested with steady sinusoidal electrical signals at a frequency of 8 kHz with the sound level meter set for frequency-weighting A. (61672-3 Clause 16.1).

Level linearity shall be measured in 5 dB steps of increasing input signal level from the starting point up to within 5 dB of the upper boundary stated in the Instruction Manual for the linear operating range at 8 kHz, then at 1 dB steps of increasing input signal level up to, but not including, the first indication of overload. The test of level linearity shall then be continued at 5 dB steps of decreasing input signal level from the starting point down to within 5 dB of the specified lower boundary, then at 1 dB steps of decreasing input signal level down to, but not including, the first indication of an under-range condition.

Measured level linearity deviations shall not exceed the applicable acceptance limits given in IEC 61672-1 from the specified upper boundary of the linear operating range up to, but not including, the first indication of overload and also from the specified lower boundary of the linear operating range down to, but not including, the first indication of an under-range condition.

"Y" means indicator under-range. However, if 20dB above noise floor is reached then no results are reported.

☑ Checked

25. Third Octave Level Ranges

25(a). Third Octave Level Linearity Including the Level range (31.5Hz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	31.5
Reference SPL (dB)	94
Output (mVrms)	151.2

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

25(b). Third Octave Level Linearity Including the Level range (1kHz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	1k
Reference SPL (dB)	94
Output (mVrms)	148.6

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

25(c). Third Octave Level Linearity Including the Level range (16kHz)

SLM Settings	
Time Weighting	Fast
Frequency Weighting	Z
SLM Range	MID
Generator & Attenuator Settings	
Attenuation (dB)	10
Generator Frequency (Hz)	16k
Reference SPL (dB)	94
Output (mVrms)	147.9

Settings		Level (dB)			Tolerance	
Range	Atten	Expected	Indicated	Difference	Type 1	Type 2
HIGH	0.0	104.0	104.0	0.0	± 0.5	± 0.6
MID	14.0	90.0	90.0	0.0	± 0.5	± 0.6
LOW	34.0	70.0	70.0	0.0	± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6
					± 0.5	± 0.6

Conforming	Yes

Uncertainty (+/-) dB	0.13

Description of Tests

25. Filter Level linearity including the level range control (IEC 61260-3 Clause 11.9)

11.9 For the same three filters as selected above, test each available level range in the following way: based on the same reference level, adjust the input level to be 30 dB below upper boundary of the linear operating range for each of the selected range settings. The measured level linearity deviation shall not exceed the acceptance limits given in 5.13.3 and 5.13.4 of IEC 61260-1:2014

The three filter frequencies are 31.5Hz, 1kHz and 16kHz.

The level linearity differences are calculated as the indicated signal level minus the corresponding expected signal level.

☑ Checked

26. Third Octave Band Filter Lower Limit

26(a). Octave Band Filter Lower Limit (Reference Range)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Lowest Range	MID
Lower Limit for the Range	40

	1	2	3	4	5	6	7	8	9	10
Freq	4Hz	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz
Measured			9.3	10.1	11.9	11.6	12.4	7.1	7.1	7.7
Conforming	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
Measured	5.6	7.0	4.7	2.9	2.1	1.8	1.3	1.7	1.6	1.6
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz
Measured	3.0	1.1	1.4	1.1	2.1	2.0	2.7	3.9	4.4	5.3
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz	20kHz	25kHz	31.5kHz
Measured	6.6	7.2	8.2	9.2	10.1	11.1	12.4	13.5		
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A

Conforming	Yes

Uncert (+/-) dB	0.09

26(b). Octave Band Filter Lower Limit (Lowest Range)

SLM, Attenuator & Generator Settings	
Time Weighting	Fast
Frequency Weighting	Z
Lowest Range	LOW
Lower Limit for the Range	20

	1	2	3	4	5	6	7	8	9	10
Freq	4Hz	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz
Measured			11.0	6.7	9.9	8.8	8.0	6.7	3.4	2.7
Conforming	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
Measured	4.3	3.3	3.1	2.9	2.5	2.4	1.5	1.1	1.3	0.2
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	400Hz	500Hz	630Hz	800Hz	1kHz	1.25kHz	1.6kHz	2kHz	2.5kHz	3.15kHz
Measured	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Freq	4kHz	5kHz	6.3kHz	8kHz	10kHz	12.5kHz	16kHz	20kHz	25kHz	31.5kHz
Measured	0.0	0.0	0.0	0.0	0.0	0.4	1.0	2.1		
Conforming	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A

Conforming	Yes

Uncert (+/-) dB	0.09

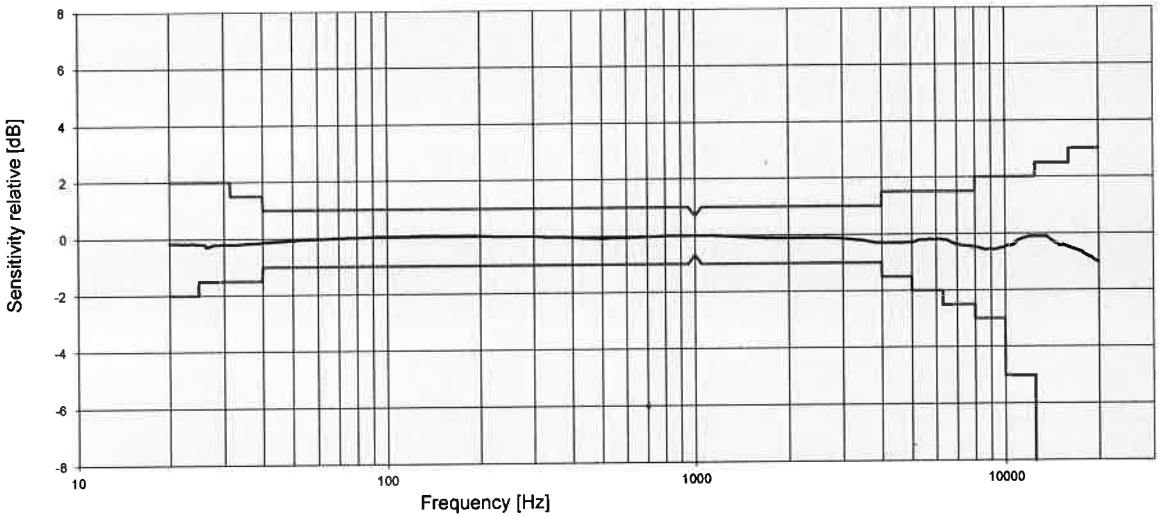
26. Third Octave Band Filter Lower LImit (IEC 61260-3 Clause 12)
12.2 Short-circuit the input terminal or use similar means to ensure that the level of the input signal is below the lower limit of the specified linear operating range. Record the output level from each filter in the set. The output level shall not exceed the specified lower limit for the appropriate filter and range.
Interpretation: The yellow cells are the observed values. The measured value must not exceed the Lower LImit for the Range.

☑ Checked

NTi AUDIO

Frequency Response

Measurement Microphone **M2230** consisting of **MA220 PreAmplifier** S.No. **10617**
MC230A Capsule S.No. **A21889**



Sensitivity @ 1 kHz = 45.0 mV/Pa

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A division of Renzo Tonin & Associates (NSW) Pty Ltd ABN 29 117 462 861

Certificate of Calibration
Sound Level Calibrator

Calibration Date	5/07/2022	**Job No**	RB991	**Operator**	AH
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				

Test Item

Calibrator Make	B&K	**Model**	4231	**Serial No**	#3015756 #BOX 1
Accessories	N/A				

Class (1 or 2)	1

Environmental Conditions	Measured	
	Start	End
Temperature (degC)	21.2	21.5
Rel. Humidity (%)	65	64.8
Air Pressure (kPa)	101	100.9

Applicable Standards:
IEC 60942:2017 "Electroacoustics - Sound calibrators"

Applicable Work Instruction:
RWi-08 SLM & Calibrator Verification

Laboratory Equipment :
GRAS Power Module type 12AK SN 1551616
GRAS 1/2" Pressure Microphone 40AD SN 252620 and preamplifier SN 292045
B&K4226 Multifunction Acoustic Calibrator SN 2288472
Agilent Digital Multimeter Model 34401A SN MY41004386
Audio Tester AUDT30 v3.0 software
Behringer UCA222 USB Audio Interface U-Control

Traceability:
The results of the tests and measurements included in this document are traceable via the test methods described under each test, and by the use of the above equipment, which has been calibrated by NATA accredited calibration facilities.

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

Uncertainty:

Calibration Statement:
The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed. However, as public evidence was not available, from a testing organization responsible for pattern approval, to demonstrate that the model of sound calibrator conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2017, no general statement or conclusion can be made about conformance of the sound calibrator to the requirements of IEC 60942:2017.

NATA
WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory Number 14966

Accredited for compliance with ISO/IEC 17025 - Calibration

Authorized Signatory:

Print Name: Ariel Michael Date: 5/7/2022

Template Document Name: RQT-03 (rev 65) Calibrator Verification

NATacoustic
Sound Level Calibrator Verification - Summary of Tests

Calibration Date	5/07/2022	**Job No**	RB991	**Operator**	AH
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				

1. Instrument Information & Reference Conditions

Calibrator Make	B&K	**Model**	4231	**Serial No**	#3015756 #BOX 1
Accessories	N/A				

Class (1 or 2)	1

1(a). Instrument Information (Instrument Manual is Available)	Yes

1(b). Preliminary Inspection and Power Supply		
	Instrument Inspected	Yes
	Calibration Equipment Okay	Yes
	Power Supply Ok (Start)	Yes
	Power Supply Ok (End)	Yes

1(c). Environmental Conditions	**Environmental Conditions**	**Measured**	
		Start	**End**
	Temperature (degC)	21.2	21.5
	Rel. Humidity (%)	65	64.8
	Air Pressure (kPa)	101	100.9
	Conforming	Yes	Yes

Test Description

2(a). Absolute Sound Pressure Level	**Calibrator Setting**	**SPL**	**Uncert (+/-) dB**	**Pass**
	1	94.02	0.11	Yes
	2	114.03	0.11	Yes
	3	N/A	N/A	N/A
	4	N/A	N/A	N/A
	5	N/A	N/A	N/A

2(b). Sound Pressure Level Fluctuation	**Calibrator Setting**	**SPL**	**Uncert (+/-) dB**	**Pass**
	1	0.02	0.02	Yes
	2	0.00	0.02	Yes
	3	N/A	N/A	N/A
	4	N/A	N/A	N/A
	5	N/A	N/A	N/A

3(a). Frequency Deviation	**Calibrator Setting**	**Freq Hz**	**Uncert (+/-) %**	**Pass**
	1	1000.023	0.010	Yes
	2	999.9952	0.010	Yes
	3			N/A
	4			N/A
	5			N/A

3(b). Total Distortion	**Calibrator Setting**	**Distortion %**	**Uncert (+/-) %**	**Pass**
	1	0.11	0.13	Yes
	2	0.40	0.13	Yes
	3		0.13	N/A
	4		0.13	N/A
	5		0.13	N/A

Calibrator Overall Conforming	**Yes**

Accredited for compliance with AS ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Periodic tests were performed in accordance with procedures from IEC 60942 Ed. 4.0 2017-11 Electroacuostics - Sound calibrators.

☑ Checked

Template Document Name: RQT-03 (rev 65) Calibrator Verification

1. Calibrator Information & Reference Conditions

Calibration Date	5/07/2022	**Job No**	RB991	**Operator**	AH
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				
Calibrator Make	B&K	**Model**	4231	**Serial No**	#3015756 #BOX 1
Accessories	N/A				

Microphone Type	GRAS 40AD Preamp SN: 292045 Capsule SN: 252620
Adaptor	Nil

1(a). Instrument Information

Class (1 or 2)	1

Calibrator Setting	Nominal Settings		4226 Settings	
No	**Freq Hz**	**SPL**	**SPL**	**Uncert.**
1	1k	94.0	94.03	0.06
2	1k	114.0	114.03	0.06
3				
4				
5				

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

Instruction Manual Title (Clause 6.3, IEC 60942:2017)	PRODUCT DATA SHEET
Version	BP 1311-14
Publication Date	NOV 1999
Source of Document (& Date of Download if Applicable)	B&K WEBSITE
Conforming	**Yes**

Pattern Evaluation Test Report (Annex A, IEC 60942:2017)	
Reference Number or Page Number	
Publication Date	
Source of Document (& Date of Download if Applicable)	
Conforming	**No**

1(b). Preliminary Inspection and Power Supply

Instrument Inspected	**Yes**
Laboratory Calibration Equipment Ok	**Yes**
Power Supply Ok (Start)	**Yes**
Power Supply Ok (End)	**Yes**

1(c). Environmental Conditions

Environmental Conditions	Measured		Uncert.	Limits	
	Start	**End**		**Min**	**Max**
Air Temp. (°C)	21.2	21.5	0.62	20	26
Rel. Humidity (%)	65.0	64.8	2.42	25	90
Air Pressure (kPa)	101.0	100.9	2.42	80	105
Conforming	**Yes**	**Yes**			

☑ Checked

2. Sound Pressure Level

Calibrator Setting 1	
SLM & 4226 Settings	
Nominal SPL dB	94.0
Nominal Frequency Hz	1k
Reference B&K4226 SPL	94.03
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1	428.12	426.85	-0.03	-0.01	0.02	0.02	0.25	0.40
#2	426.94	427.05	0.00					
#3	426.61	426.57	0.00					

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2
	0.02	0.07	0.15

Pass SPL	Yes	Uncertainty dB	0.11
Pass Fluctuation in SPL	Yes	Uncertainty dB	0.02

Calibrator Setting 2	
SLM & 4226 Settings	
Nominal SPL dB	114.0
Nominal Frequency Hz	1k
Reference B&K4226 SPL	114.03
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1	4257.81	4257.29	0.00	0.00	0.03	0.03	0.25	0.40
#2	4256.26	4258.32	0.00					
#3	4255.17	4259.38	0.01					

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2
	0.00	0.07	0.15

Pass SPL	Yes	Uncertainty dB	0.11
Pass Fluctuation in SPL	Yes	Uncertainty dB	0.02

Calibrator Setting 3	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								
#3								

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Calibrator Setting 4	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								

#3								

Fluctuation in SPL			Tolerance	
		Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Calibrator Setting 5	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								
#3								

Fluctuation in SPL			Tolerance	
		Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Description of Test

2. Sound Pressure Level (Clause B.4.6.3 Measurements)

B.4.6.3.1 Using the method described in B.4.6.2.1 or B.4.6.2.2, the principal sound pressure level at the principal frequency shall be measured at least three times. The microphone shall be coupled to the sound calibrator before each measurement and uncoupled after each measurement. The microphone shall be rotated around its axis at each coupling so that the rotational orientation of the microphone is evenly distributed over the measurements. The absolute value of the difference between the mean measured sound pressure level and the specified sound pressure level shall not exceed the acceptance limits given in Table 2 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.1 for the class of sound calibrator.

B.4.6.3.2 For multi-frequency sound calibrators, unless not required by the customer (under B.1.2) measurements of the principal sound pressure level, as described in B.4.6.3.1, shall be repeated for the maximum and minimum frequency settings of the sound calibrator for which the instruction manual states that the instrument conforms to the requirements of this document.

B.4.6.3.3 The measurement of sound pressure level shall be repeated (excluding replications) for all other combinations of sound pressure level and frequency settings for which the instruction manual states that the instrument conforms to the requirements of this document, or for those combinations required by the customer (as described in B.1.2). The absolute value of the difference between each measured sound pressure level and the corresponding specified sound pressure level shall not exceed the acceptance limits given in Table 2 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.1 for the class of sound calibrator. It is recommended that testing is normally performed for one model of microphone only.

Interpretation: The "Mean" is the average value of the three trials (Trial 1,2,3). The "Corr Mean" is the deviation of the sound pressure level from the required value. The "Deviation" is the absolute value of the Corr Mean which is to be compared to the "Tolerance" value for the class of instrument.

☑ Checked

3(a). Frequency & 3(b). Distortion

3(a). Frequency							
Calibrator Setting	Nominal Hz	Observed Hz	Deviation %	Tolerance % Class 1	Tolerance % Class 2	Pass	Uncertainty %
1	1000	1000.023	0.00	0.7	1.7	Yes	0.010
2	1000	999.9952	0.00	0.7	1.7	Yes	0.010
3				0.7	1.7	N/A	
4				0.7	1.7	N/A	
5				0.7	1.7	N/A	

3(b). Distortion						
Calibrator Setting	Nominal Hz	Observed %THD		Tolerance % Class 1	Tolerance % Class 2	Pass
1	1000	0.11		2.5	3	Yes
2	1000	0.40		2.5	3	Yes
3						N/A
4						N/A
5						N/A

Uncertainty %THD	0.13

Description of Test

3. Frequency (Clause B4.7 Frequency)
The frequency of the sound generated by the sound calibrator coupled to the microphone used in B.4.6 shall be measured as an average over a period of between 20 s and 25 s of operation, at the principal sound pressure level, for each frequency setting of the sound calibrator for which the instruction manual states that the instrument conforms to the requirements of this document, or for the principal frequency and for any other combinations of sound pressure level setting and frequency setting specified by the customer. The absolute value of the difference in per cent between each measured frequency and the corresponding specified frequency shall not exceed the acceptance limits given in Table 4 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.2 for the class of sound calibrator.

Interpretation: The "Deviation %" column represents the percentage difference of the observed frequency Hz from the nominal frequency Hz.

Total Distortion (Clause B4.8 Total distortion + noise)
The total distortion + noise of the sound pressure signal generated by the sound calibrator shall be measured over a bandwidth of 22,4 Hz (nominal frequency) to 22,4 kHz (nominal frequency), as an average over a period of between 20 s and 25 s of operation with the microphone used in B.4.6, at the maximum and minimum sound pressure level settings available at each frequency for which the instruction manual states that the instrument conforms to the requirements of this document, or for the principal sound pressure level and principal frequency and for any other combinations of sound pressure level setting and frequency setting specified by the customer. The total distortion + noise can be measured using a rejection filter device (distortion factor meter) or an appropriate FFT analyser, and the method of measurement shall be reported. The measured total distortion + noise shall not exceed the acceptance limits given in Table 7 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.3 for the class of sound calibrator. An instrument that measures total harmonic distortion only is not suitable.

Interpretation: The "%THD" column is the observed Percent Total Harmonic Distortion.

☑ Checked

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Certificate of Calibration
Sound Level Calibrator

Calibration Date	17/01/2023	**Job No**	RC035	**Operator**	AM
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				

Test Item

Calibrator Make	B&K	**Model**	4231	**Serial No**	#3009707 #XL2-B
Accessories	N/A				

Class (1 or 2)	1

Environmental Conditions	Measured	
	Start	End
Temperature (degC)	23.4	24
Rel. Humidity (%)	55.6	57.1
Air Pressure (kPa)	101.1	101.07

Applicable Standards:
IEC 60942:2017 "Electroacoustics - Sound calibrators"

Applicable Work Instruction:
RWi-08 SLM & Calibrator Verification

Laboratory Equipment :
GRAS Power Module type 12AK SN 1551616
GRAS 1/2" Pressure Microphone 40AD SN 252620 and preamplifier SN 292045
B&K4226 Multifunction Acoustic Calibrator SN 2288472
Agilent Digital Multimeter Model 34401A SN MY41004386
Audio Tester AUDT30 v3.0 software
Behringer UCA222 USB Audio Interface U-Control

Traceability:
The results of the tests and measurements included in this document are traceable via the test methods described under each test, and by the use of the above equipment, which has been calibrated by NATA accredited calibration facilities.

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

Uncertainty:

Calibration Statement:
The sound calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942:2017 for the sound pressure level(s) and frequency(ies) stated, for the environmental conditions under which the tests were performed. However, as public evidence was not available, from a testing organization responsible for pattern approval, to demonstrate that the model of sound calibrator conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2017, no general statement or conclusion can be made about conformance of the sound calibrator to the requirements of IEC 60942:2017.

NATA WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory Number 14966

Accredited for compliance with ISO/IEC 17025 - Calibration

Authorized Signatory:

Print Name: Ariel Michael Date: 17/01/2023

Template Document Name: RQT-03 (rev 70) Calibrator Verification

NATacoustic
Sound Level Calibrator Verification - Summary of Tests

Calibration Date	17/01/2023	**Job No**	RC035	**Operator**	AM
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				

1. Instrument Information & Reference Conditions

Calibrator Make	B&K	**Model**	4231	**Serial No**	#3009707 #XL2-B
Accessories	N/A				

Class (1 or 2)	1

1(a). Instrument Information (Instrument Manual is Available)	Yes

1(b). Preliminary Inspection and Power Supply		
	Instrument Inspected	Yes
	Calibration Equipment Okay	Yes
	Power Supply Ok (Start)	Yes
	Power Supply Ok (End)	Yes

1(c). Environmental Conditions	**Environmental Conditions**	**Measured**	
		Start	**End**
	Temperature (degC)	23.4	24
	Rel. Humidity (%)	55.6	57.1
	Air Pressure (kPa)	101.1	101.07
	Conforming	Yes	Yes

Test Description

2(a). Absolute Sound Pressure Level	**Calibrator Setting**	**SPL**	**Uncert (+/-) dB**	**Pass**
	1	94.04	0.11	Yes
	2	114.04	0.11	Yes
	3	N/A	N/A	N/A
	4	N/A	N/A	N/A
	5	N/A	N/A	N/A

2(b). Sound Pressure Level Fluctuation	**Calibrator Setting**	**SPL**	**Uncert (+/-) dB**	**Pass**
	1	0.01	0.02	Yes
	2	0.01	0.02	Yes
	3	N/A	N/A	N/A
	4	N/A	N/A	N/A
	5	N/A	N/A	N/A

3(a). Frequency Deviation	**Calibrator Setting**	**Freq Hz**	**Uncert (+/-) %**	**Pass**
	1	999.96	0.010	Yes
	2	999.96	0.010	Yes
	3			N/A
	4			N/A
	5			N/A

3(b). Total Distortion	**Calibrator Setting**	**Distortion %**	**Uncert (+/-) %**	**Pass**
	1	0.64	0.13	Yes
	2	0.34	0.13	Yes
	3		0.13	N/A
	4		0.13	N/A
	5		0.13	N/A

Calibrator Overall Conforming	**Yes**

Accredited for compliance with AS ISO/IEC 17025 - General requirements for the competence of testing and calibration laboratories.
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.

Periodic tests were performed in accordance with procedures from IEC 60942 Ed. 4.0 2017-11 Electroacuostics - Sound calibrators.

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Template Document Name: RQT-03 (rev 70) Calibrator Verification

1. Calibrator Information & Reference Conditions

Calibration Date	17/01/2023	**Job No**	RC035	**Operator**	AM
Client Name	RENZO TONIN & ASSOCIATES (NSW) PTY LTD				
Client Address	LEVEL 1 418A ELIZABETH ST SURRY HILLS 2010				
Calibrator Make	B&K	**Model**	4231	**Serial No**	#3009707 #XL2-B
Accessories	N/A				

Microphone Type	GRAS 40AD Preamp SN: 292045 Capsule SN: 252620
Adaptor	Nil

1(a). Instrument Information

Class (1 or 2)	1

Calibrator Setting	**Nominal Settings**		**4226 Settings**	
No	**Freq Hz**	**SPL**	**SPL**	**Uncert.**
1	1k	94.0	94.03	0.06
2	1k	114.0	114.03	0.06
3				
4				
5				

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

Instruction Manual Title (Clause 6.3, IEC 60942:2017)	Manual
Version	1.2
Publication Date	2/5/2007
Source of Document (& Date of Download if Applicable)	Internet

Conforming	**Yes**

Pattern Evaluation Test Report (Annex A, IEC 60942:2017)	
Reference Number or Page Number	
Publication Date	
Source of Document (& Date of Download if Applicable)	

Conforming	**No**

1(b). Preliminary Inspection and Power Supply

Instrument Inspected	Yes
Laboratory Calibration Equipment Ok	Yes
Power Supply Ok (Start)	Yes
Power Supply Ok (End)	Yes

1(c). Environmental Conditions

Environmental Conditions	**Measured**		**Uncert.**	**Limits**	
	Start	**End**		**Min**	**Max**
Air Temp. (°C)	23.4	24.0	0.4	20	26
Rel. Humidity (%)	55.6	57.1	6.8	25	90
Air Pressure (kPa)	101.1	101.1	0.13	80	105
Conforming	Yes	Yes			

☑ Checked

2. Sound Pressure Level

Calibrator Setting 1	
SLM & 4226 Settings	
Nominal SPL dB	94.0
Nominal Frequency Hz	1k
Reference B&K4226 SPL	94.03
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1	423.83	424.11	**0.01**	0.01	0.04	0.04	0.25	0.40
#2	423.59	423.80	**0.00**					
#3	422.60	423.75	**0.02**					

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2
	0.01	0.07	0.15

Pass SPL	Yes	Uncertainty dB	0.11
Pass Fluctuation in SPL	Yes	Uncertainty dB	0.02

Calibrator Setting 2	
SLM & 4226 Settings	
Nominal SPL dB	114.0
Nominal Frequency Hz	1k
Reference B&K4226 SPL	114.03
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1	4226.91	4223.72	**-0.01**	0.01	0.04	0.04	0.25	0.40
#2	4217.04	4222.08	**0.01**					
#3	4213.69	4220.89	**0.01**					

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2
	0.01	0.07	0.15

Pass SPL	Yes	Uncertainty dB	0.11
Pass Fluctuation in SPL	Yes	Uncertainty dB	0.02

Calibrator Setting 3	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								
#3								

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Calibrator Setting 4	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								

#3								

Fluctuation in SPL			Tolerance	
		Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Calibrator Setting 5	
SLM & 4226 Settings	
Nominal SPL dB	
Nominal Frequency Hz	
Reference B&K4226 SPL	
B&K4226 Setting "Microphone"	b
B&K4226 Setting "Sound Field"	Pressure

SPL Deviation from Nominal							Tolerance	
Trial No	Ref mV rms	Test mV rms	dB	Mean	Corr Mean	Deviation	Class 1	Class 2
#1								
#2								
#3								

Fluctuation in SPL		Tolerance	
	Deviation	Class 1	Class 2

Pass SPL	N/A	Uncertainty dB	N/A
Pass Fluctuation in SPL	N/A	Uncertainty dB	N/A

Description of Test

2. Sound Pressure Level (Clause B.4.6.3 Measurements)

B.4.6.3.1 Using the method described in B.4.6.2.1 or B.4.6.2.2, the principal sound pressure level at the principal frequency shall be measured at least three times. The microphone shall be coupled to the sound calibrator before each measurement and uncoupled after each measurement. The microphone shall be rotated around its axis at each coupling so that the rotational orientation of the microphone is evenly distributed over the measurements. The absolute value of the difference between the mean measured sound pressure level and the specified sound pressure level shall not exceed the acceptance limits given in Table 2 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.1 for the class of sound calibrator.

B.4.6.3.2 For multi-frequency sound calibrators, unless not required by the customer (under B.1.2) measurements of the principal sound pressure level, as described in B.4.6.3.1, shall be repeated for the maximum and minimum frequency settings of the sound calibrator for which the instruction manual states that the instrument conforms to the requirements of this document.

B.4.6.3.3 The measurement of sound pressure level shall be repeated (excluding replications) for all other combinations of sound pressure level and frequency settings for which the instruction manual states that the instrument conforms to the requirements of this document, or for those combinations required by the customer (as described in B.1.2). The absolute value of the difference between each measured sound pressure level and the corresponding specified sound pressure level shall not exceed the acceptance limits given in Table 2 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.1 for the class of sound calibrator. It is recommended that testing is normally performed for one model of microphone only.

Interpretation: The "Mean" is the average value of the three trials (Trial 1,2,3). The "Corr Mean" is the deviation of the sound pressure level from the required value. The "Deviation" is the absolute value of the Corr Mean which is to be compared to the "Tolerance" value for the class of instrument.

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3(a). Frequency & 3(b). Distortion

3(a). Frequency							
Calibrator Setting	Nominal Hz	Observed Hz	Deviation %	Tolerance % Class 1	Tolerance % Class 2	Pass	Uncertainty %
1	1000	999.96	0.00	0.7	1.7	Yes	0.010
2	1000	999.96	0.00	0.7	1.7	Yes	0.010
3				0.7	1.7	N/A	
4				0.7	1.7	N/A	
5				0.7	1.7	N/A	

3(b). Distortion						
Calibrator Setting	Nominal Hz	Observed %THD		Tolerance % Class 1	Tolerance % Class 2	Pass
1	1000	0.64		2.5	3	Yes
2	1000	0.34		2.5	3	Yes
3						N/A
4						N/A
5						N/A

Uncertainty %THD	0.13

Description of Test

3. Frequency (Clause B4.7 Frequency)
The frequency of the sound generated by the sound calibrator coupled to the microphone used in B.4.6 shall be measured as an average over a period of between 20 s and 25 s of operation, at the principal sound pressure level, for each frequency setting of the sound calibrator for which the instruction manual states that the instrument conforms to the requirements of this document, or for the principal frequency and for any other combinations of sound pressure level setting and frequency setting specified by the customer. The absolute value of the difference in per cent between each measured frequency and the corresponding specified frequency shall not exceed the acceptance limits given in Table 4 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.2 for the class of sound calibrator.

Interpretation: The "Deviation %" column represents the percentage difference of the observed frequency Hz from the nominal frequency Hz.

Total Distortion (Clause B4.8 Total distortion + noise)
The total distortion + noise of the sound pressure signal generated by the sound calibrator shall be measured over a bandwidth of 22,4 Hz (nominal frequency) to 22,4 kHz (nominal frequency), as an average over a period of between 20 s and 25 s of operation with the microphone used in B.4.6, at the maximum and minimum sound pressure level settings available at each frequency for which the instruction manual states that the instrument conforms to the requirements of this document, or for the principal sound pressure level and principal frequency and for any other combinations of sound pressure level setting and frequency setting specified by the customer. The total distortion + noise can be measured using a rejection filter device (distortion factor meter) or an appropriate FFT analyser, and the method of measurement shall be reported. The measured total distortion + noise shall not exceed the acceptance limits given in Table 7 for the class of sound calibrator. Actual uncertainties of measurement, calculated for a coverage probability of 95 %, shall not exceed those given in Table A.3 for the class of sound calibrator. An instrument that measures total harmonic distortion only is not suitable.

Interpretation: The "%THD" column is the observed Percent Total Harmonic Distortion.

☑ Checked