

**BORG MANUFACTURING
124 LOWES MOUNT ROAD
OBERON NSW**

**SSD 7016 B20B
NOISE VERIFICATION REPORT**

Andrew Brady

Table of Contents

- 1. Introduction 3**
 - 1.1 Purpose of this Report..... 3**
- 2. Noise Verification Study..... 3**
- 3. Noise Monitoring 4**
 - 3.1 Scope 4**
 - 3.2 Results 6**
- 4. Discussion 6**
 - 4.1 Noise Verification Study Monitoring Results 6**
- 5. Conclusion 7**

- Table 1 Impact Assessment Criteria 4
- Table 2 Noise Verification Study Monitoring Results June 2022 6

- Figure 1 Noise Monitoring Locations 5

- Appendix 1 Borg Manufacturing Facility Noise Verification Study 22075_RP1**

1. Introduction

1.1 Purpose of this Report

This Report has been prepared by Borg Manufacturing to address the Minister's Condition of Approval (SSD 7016) B20B as stated below:

Within three months of commissioning the materials handling equipment approved for installation and operation under SSD-7016-Mod-3, the Applicant must undertake a Noise Verification Study for the Development to the satisfaction of the Secretary. The Study must:

- (a) be undertaken by a suitable qualified expert;*
- (b) include an analysis of compliance with noise limits specified in Condition B16;*
- (c) include an outline of management actions to be taken to address any exceedances of the limits specified in Condition B16; and*
- (d) describe the contingency measures in the event management actions are not effective in reducing noise levels to an acceptable level.*

Subsequently, this Report will also address Condition B16 which states: *The Applicant must ensure that noise generated by the Development does not exceed the noise limits) below:*

LOCATION: All sensitive receivers

DAY: LAeq (15 min) 55

EVENING: LAeq (15 min) 50

NIGHT: LAeq (15 min) 45

Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

The commissioning of the materials handling building commenced February 2022, operation of the plant commenced in June 2022. Noise consultants EMM (formally Global Acoustics) provided their final *Environmental Noise Monitoring Noise Verification Study* (report 22075_RP1) on 1 September 2022.

2. Noise Verification Study

Borg Manufacturing engaged noise consultants EMM to undertake noise monitoring events in accordance with Borg Manufacturing Operational Noise Management Plan (ONMP), Development Consent SSD 7016 and Environment Protection Licence 3035 (EPL). As per Condition B20(b), EMM performed an analysis of compliance with noise limits specified in Condition B16 from attended noise monitoring events in June 2022. The analysis and conclusions are reported in *Borg Manufacturing Facility – Environmental Noise Monitoring Noise Verification Study 22075_RP1*. This Study has been included as Appendix 2 of this Report.

To satisfy condition B20B Global Acoustics attended site in June 2022 to determine sound power data for the noise verification study for items of plant listed in *Borg Manufacturing Timber Panel Processing Facility Noise and Vibration Impact Assessment* dated May 2016. The resultant *Borg Manufacturing Facility, Noise Verification Study 22075_RP1* is included in this Report as Appendix 1.

3. Noise Monitoring

3.1 Scope

EMM performed noise verification study in June 2022 during the day, evening and night time periods to quantify and describe the acoustic environment around the facility, and compare results with specified limits to determine compliance with EPL 3035 noise criteria as shown in Table 1.

TABLE 1 IMPACT ASSESSMENT CRITERIA

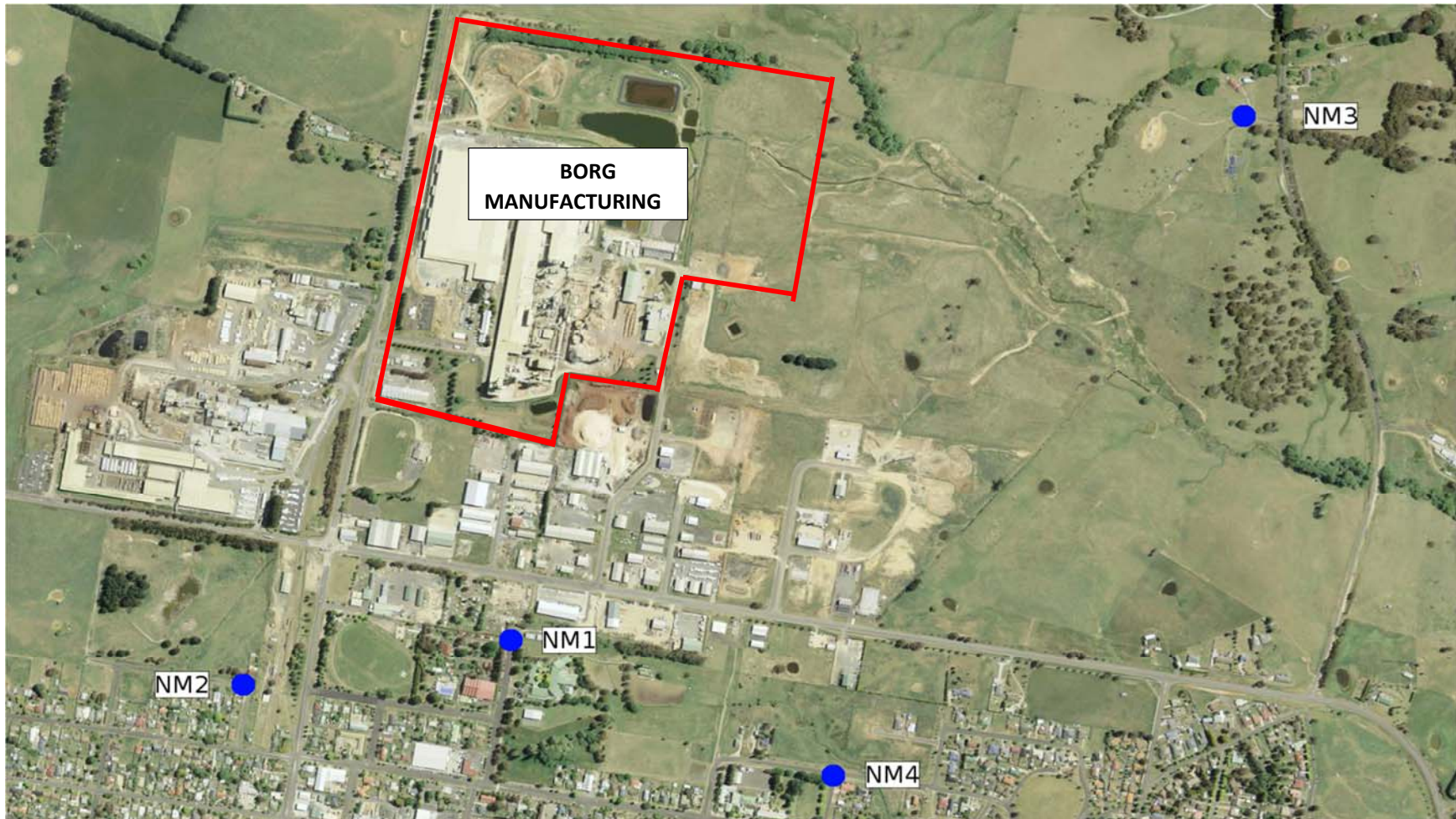
Location		Day ¹	Evening ²	At all other times ³
		L _{Aeq,15minute} dB	L _{Aeq,15minute} dB	L _{Aeq,15minute} dB
All sensitive receivers		55	50	45
1	7am to 6pm			
2	6pm to 10 pm			
3	10pm to 7am			

The four noise verification (NM) locations are as follows:

1. NM1 – Oberon Caravan Park
2. NM2 – Intersection of Pine and Herborn Streets
3. NM3 - 127 Hazelgrove Road
4. NM4 – Intersection of Tasman and Earl Streets

Figure 1 displays these monitoring positions and the location of Borg Manufacturing.

FIGURE 1 NOISE MONITORING LOCATIONS



3.2 Results

Table 2 displays noise verification monitoring results taken at the four monitoring locations (as shown in Figure 1) for that noise which was generated by Borg Manufacturing during the June 22 monitoring event.

TABLE 2 NOISE VERIFICATION STUDY OF MATERIAL HANDLING EQUIPMENT RESULTS JUNE 2022

Location	Start Date & Time	Borg LAeq,15min dB ¹	Noise Limit dB(A)
NM1	28/06/2022 19:05	43	50
NM1	28/06/2022 22:27	45	45
NM1	29/06/2022 10:30	48	55
NM2	28/06/2022 18:35	42	50
NM2	28/06/2022 22:00	41	45
NM2	29/06/2022 10:00	NM	55
NM3	28/06/2022 20:15	IA	50
NM3	28/06/2022 23:32	<25	45
NM3	29/06/2022 11:37	40	55
NM4	28/06/2022 19:36	<30	50
NM4	28/06/2022 23:00	<30	45
NM4	29/06/2022 11:06	45	55

1 Includes modifying factors if applicable

IA Inaudible, no site noise was audible at the monitoring location

NM Not Measurable, some noise was audible but could not be quantified

4. Discussion

4.1 Noise Verification Study Results

A noise verification study was conducted in June 2022 by independent noise consultants EMM in accordance with Borg Manufacturing Operational Noise Management Plan, Development Consent SSD 7016, and Environment Protection Licence 3035. The results were reviewed by EMM to provide a historical data analysis of compliance with EPL 3035 noise limits at sites around Borg Manufacturing and to satisfy SSD 7016 condition B20(a) and B20(b):

(a) be undertaken by a suitable qualified expert

(b) Include an analysis of compliance with noise limits specified in condition B16

Only that noise which is attribute to Borg Manufacturing has been reproduced in Table 2 for the purpose of this Report. See Appendix 1 for total noise levels measured at each location during the attended survey within Global Acoustics *Borg Manufacturing Facility – Environmental Noise Monitoring Noise Verification Study 22075_RP1*.

All monitoring was conducted at locations representative of the nearest residents in accordance with Australian Standard AS1055 'Acoustic, Description and Measurement of Environmental Noise', Development Consent SSD 7016, Borg Manufacturing Operational Noise Management Plan and relevant NSW EPA requirements.

As can be seen in Table 2, when comparing Borg LAeq results with Noise Limit, during all monitoring events there were no exceedances of noise limits specified in SSD 7016 condition B16 or EPL 3035.

5. Conclusion

This Noise Verification Report has been prepared by Borg Manufacturing to demonstrate compliance with SSD 7016 conditions of approval B20B and subsequently B16.

Borg Manufacturing engaged independent noise consultants EMM to undertake a noise verification study at the four sensitive receiver locations off-site surrounding the facility within 3 months of the commissioning of the new materials handling equipment. The noise verification study was initiated to perform an analysis of these monitoring event results in order to demonstrate compliance with noise limits specified in condition B16.

With regards to condition B20B the analysis conducted by EMM confirmed that Borg Manufacturing was completely operational during the monitoring event in June 2022 and no noise limit exceedances were identified at the four off-site sensitive receiver locations. EMM concluded that Borg Manufacturing complied with the noise limits at all monitoring locations during the sampling events in June 2022 and therefore no noise attenuation measures were necessary for the equipment associated with the materials handling building installed under modification 3 .

Borg therefore conclude that this Noise Verification Study demonstrates compliance with Development Consent SSD 7016 conditions of approval B20B and B16.

APPENDIX 1

Borg Manufacturing Facility Noise Verification Study 22075_RP1

Borg Panels Facility

Noise Verification Study of Material Handling Equipment

Prepared for Borg Construction Pty Ltd

August 2022

Borg Panels Facility

Noise Verification Study of Material Handling Equipment

Borg Construction Pty Ltd

E22075 RP1

August 2022

Version	Date	Prepared by	Approved by	Comments
0.1	24/08/2022	Will Moore	Jesse Tribby	Draft
1.0	1/09/2022	Will Moore	Jesse Tribby	Final

Approved by



Jesse Tribby

Senior Acoustic Consultant

1 September 2022

Level 3 175 Scott Street

Newcastle NSW 2300

This report has been prepared in accordance with the brief provided by Borg Construction Pty Ltd and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of Borg Construction Pty Ltd and no responsibility will be taken for its use by other parties. Borg Construction Pty Ltd may, at its discretion, use the report to inform regulators and the public.

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TABLE OF CONTENTS

1	Introduction	1
1.1	Background	1
1.2	Monitoring locations	1
1.3	Terminology and abbreviations	3
2	Regulatory requirements and noise criteria	4
2.1	Development consents	4
2.2	Environment protection licence	4
2.3	Operational Noise Management Plan	4
2.4	Noise Criteria	4
2.5	Meteorological conditions	4
2.6	Modifying factors	4
3	Methodology	5
3.1	Overview	5
3.2	Attended noise monitoring	5
3.3	Modifying factors	6
3.4	Attended noise monitoring equipment	6
4	Results	7
4.1	Total measured noise levels	7
4.2	Modifying factors	7
4.3	Attended noise monitoring results	8
4.4	Atmospheric conditions	9
5	Summary	10

Appendices

Appendix A Calibration certificates

Tables

Table 1.1	Attended monitoring locations	1
Table 1.2	Terminology and abbreviations	3
Table 2.1	Impact assessment criteria	4
Table 3.1	Attended noise monitoring equipment	6
Table 4.1	Measured noise levels ¹	7
Table 4.2	L _{Aeq,15minute} generated by Borg against criteria	8
Table 4.3	Measured atmospheric conditions	9

Figures

Figure 1.1	Borg noise monitoring locations	2
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1 Introduction

1.1 Background

Global Acoustics (now part of EMM) was engaged by Borg Manufacturing Pty Ltd to undertake a noise verification study for commissioning of material handling equipment at the Borg panel manufacturing facility (Borg) at Oberon, NSW. The purpose of the survey was to quantify and describe the acoustic environment around the site and compare results with specified limits.

Condition B20(B) of the Borg Development Consent SSD 7016 requires a noise validation survey within three months of commissioning of material handling equipment, with assessment against noise limits specified in Condition B16. Commissioning of the material handling equipment was completed on 1 June 2022.

Attended environmental noise monitoring described in this report was done during the day, evening, and night periods of 28 and 29 June 2022 at four monitoring locations. Borg was confirmed to be fully operating during all measurements.

1.2 Monitoring locations

Monitoring locations are detailed in Table 1.1 and shown in Figure 1.1. It should be noted that Figure 1.1 shows actual monitoring positions, not the location of residences.

Table 1.1 **Attended monitoring locations**

Location Descriptor	Monitoring Locations
NM1	Oberon Caravan Park
NM2	Intersection of Pine Street and Herborn Street
NM3	127 Hazelgrove Road
NM4	Intersection of Tasman Street and Earl Street



Figure 1.1 Borg noise monitoring locations

1.3 Terminology and abbreviations

Some definitions of terms and abbreviations which may be used in this report are provided in Table 1.2.

Table 1.2 Terminology and abbreviations

Descriptor	Definition
dB(A)	Noise level measurement units are decibels (dB). The “A” weighting scale is used to describe human response to noise.
L _{Amax}	The maximum A-weighted noise level over a time period.
L _{A1}	The noise level which is exceeded for 1 per cent of the time.
L _{A1,1minute}	The noise level which is exceeded for 1 per cent of the specified time period of 1 minute.
L _{A10}	The noise level which is exceeded for 10 percent of the time.
L _{Aeq}	The average noise A-weighted energy during a measurement period.
L _{A50}	The noise level which is exceeded for 50 per cent of the time and the median noise level during a measurement period.
L _{A90}	The level exceeded for 90 percent of the time. The L _{A90} level is often referred to as the “background” noise level and is commonly used to determine noise criteria for assessment purposes.
L _{Amin}	The minimum A-weighted noise level over a time period.
L _{Ceq}	The average C-weighted noise energy during a measurement period. The “C” weighting scale is used to take into account low-frequency components of noise within the audibility range of humans.
SPL	Sound pressure level. Fluctuations in pressure measured as 10 times a logarithmic scale, with the reference pressure being 20 micropascals.
Hertz (Hz)	The frequency of fluctuations in pressure, measured in cycles per second. Most sounds are a combination of many frequencies together.
AWS	Automatic weather station used to collect meteorological data, typically at an altitude of 10 metres
VTG	Vertical temperature gradient in degrees Celsius per 100 metres altitude.
Sigma-theta	The standard deviation of the horizontal wind direction over a period of time.
SC	Stability class (or category) is determined from measured wind speed and either sigma-theta or VTG.
IA	Inaudible. When site noise is noted as IA then there was no site noise at the monitoring location.
NM	Not Measurable. If site noise is noted as NM, this means some noise was audible but could not be quantified.
Day	This is the period 7:00am to 6:00pm.
Evening	This is the period 6:00pm to 10:00pm.
Night	This is the period 10:00pm to 7:00am.

2 Regulatory requirements and noise criteria

2.1 Development consents

The most current development consent associated with activities at Borg is Development Consent SSD 7016 (the consent), most recently modified 20 May 2022. Relevant conditions of the consent, requiring commissioning testing described in this report, are reproduced in Appendix B.

2.2 Environment protection licence

Borg holds Environment Protection Licence (EPL) No. 3035 issued by the Environment Protection Authority (EPA) most recently on 2 February 2022.

2.3 Operational Noise Management Plan

Noise monitoring requirements are detailed in the Borg Operational Noise Management Plan (ONMP) and Construction Noise Management Plan (CNMP). The most recent version of the ONMP was approved in November 2021. The most recent version of the CNMP was approved in May 2021.

2.4 Noise Criteria

Noise limits are consistent between the consent and EPL and have been reproduced in Table 2.1 below.

Table 2.1 Impact assessment criteria

Location	Day $L_{Aeq,15minute}$	Evening $L_{Aeq,15minute}$	Night $L_{Aeq,15minute}$
All sensitive receivers	55	50	45

2.5 Meteorological conditions

As described in the consent, noise generated by Borg is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy (INP), as follows:

- *During rain and wind speeds greater than 3 metres/second at 10 metres above ground level; or*
- *Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or*
- *Stability category G temperature inversion conditions.*

2.6 Modifying factors

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

3 Methodology

3.1 Overview

Attended environmental noise monitoring was conducted in general accordance with Australian Standard AS1055 'Acoustics, Description and Measurement of Environmental Noise', relevant NSW EPA requirements, and the Borg ONMP. Meteorological data was obtained from the Borg automatic weather station (AWS) which allowed correlation of atmospheric parameters with measured noise levels.

3.2 Attended noise monitoring

During this survey, attended monitoring was done during the day, evening and night period at each location. The duration of each measurement was 15 minutes. Atmospheric conditions were also measured at each monitoring location.

This survey presents noise levels gathered during attended monitoring that can be the result of many sounds reaching the sound level meter microphone during monitoring. Received levels from various noise sources were noted during attended monitoring and particular attention was paid to the extent of Borg's contribution, if any, to measured levels. At each receptor location, Borg's $L_{Aeq,15\text{minute}}$ (in the absence of any other noise) was measured directly, where possible, or, determined by frequency analysis.

If the exact contribution of the source of interest (in this case Borg) cannot be established, due to masking by other noise sources in a similar frequency range, but site noise levels are observed to be well below (more than 5 dB lower than) any relevant criterion, a maximum estimate of the potential contribution of the site might be made based on other measured site-only noise descriptors in accordance with Section 7.1 of the NPfl. This is generally expressed as a 'less than' quantity, such as <20 dB or <30 dB.

The terms 'Inaudible' (IA) or 'Not Measurable' (NM) may also be used in this report. When site noise is noted as IA, no site noise was audible at the monitoring location. When site noise is noted as NM, this means some noise was audible but could not be quantified. If site noise was NM due to masking but estimated to be significant in relation to a relevant criterion, we would employ methods (eg measure closer and back calculate) to determine a value for reporting.

All sites noted as NM in this report are due to one or more of the following reasons:

- Site noise levels were extremely low and unlikely, in many cases, to be even noticed.
- Site noise levels were masked by another relatively loud noise source that is characteristic of the environment (eg breeze in foliage or continuous road traffic noise) that cannot be eliminated by moving closer.
- It was not feasible, nor reasonable to employ methods such as move closer and back calculate. Cases may include, but are not limited to, rough terrain preventing closer measurement, addition/removal of significant source to receiver shielding caused by moving closer, and meteorological conditions where back calculation may not be accurate.

Often extraneous noise events (for example, road traffic pass-bys and dogs) interfere with the measurement of site noise levels in the frequency range of interest. Where required, the sound level meter is paused during these occurrences to aid in quantification of the site only noise.

3.3 Modifying factors

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

Assessment of modifying factors is undertaken at the time of measurement if the site was audible and directly quantifiable, such that the site only L_{Aeq} was not “NM” or less than a maximum cut off value (eg “<20 dB” or “<30dB”).

If applicable, modifying factors have been reported and added to measured site only L_{Aeq} when meteorological conditions satisfied requirements for site noise criteria to be applicable. Low-frequency modifying factors have only been applied to site-only L_{Aeq} if Borg was the only contributing low-frequency noise source.

3.4 Attended noise monitoring equipment

Equipment used to measure environmental noise levels is detailed in Table 3.1. Calibration certificates are provided in Appendix A.

Table 3.1 **Attended noise monitoring equipment**

Model	Serial number	Calibration due date
Rion NA-28 sound level meter	01070590	09/06/2024
Pulsar 106 acoustic calibrator	74813	09/06/2024

4 Results

4.1 Total measured noise levels

Overall noise levels measured at each location during attended monitoring are provided in Table 4.1.

Table 4.1 Measured noise levels¹

Location	Start Date and Time	L _{Amax} dB	L _{A1} dB	L _{A10} dB	L _{Aeq} dB	L _{A50} dB	L _{A90} dB	L _{Amin} dB
NM1	28/06/2022 19:05	53	50	48	46	46	45	43
NM1	28/06/2022 22:27	55	49	47	46	45	44	42
NM1	29/06/2022 10:30	65	60	55	52	51	49	27
NM2	28/06/2022 18:35	52	49	48	46	46	45	43
NM2	28/06/2022 22:00	50	46	45	43	43	41	39
NM2	29/06/2022 10:00	60	54	50	48	47	45	43
NM3	28/06/2022 20:15	73	65	44	50	42	40	35
NM3	28/06/2022 23:32	58	52	43	42	39	36	30
NM3	29/06/2022 11:37	76	70	58	57	46	44	41
NM4	28/06/2022 19:36	44	40	36	34	33	31	29
NM4	28/06/2022 23:00	46	41	37	35	34	33	31
NM4	29/06/2022 11:06	61	54	50	48	48	45	42

Notes: 1. Levels in this table are not necessarily the result of activity at Borg.

4.2 Modifying factors

Measured site only levels were assessed for the applicability of modifying factors in accordance with the NPfI and methodology described in Section 3.3.

There were no modifying factors, as defined in the NPfI, applicable during the survey.

4.3 Attended noise monitoring results

Table 4.2 compares measured $L_{Aeq,15\text{minute}}$ from Borg with project specific noise criteria.

Table 4.2 $L_{Aeq,15\text{minute}}$ generated by Borg against criteria

Location	Start Date and Time	Wind Speed m/s	Stability Class	Criterion dB	Criterion Applies? ¹	Borg $L_{Aeq,15\text{minute}}$ dB ²	Exceedance ^{3 4}
NM1	28/06/2022 19:05	2.7	D	50	Yes	43	Nil
NM1	28/06/2022 22:27	3.9	D	45	No	45	NA
NM1	29/06/2022 10:30	5.2	D	55	No	48	NA
NM2	28/06/2022 18:35	3.0	D	50	Yes	42	Nil
NM2	28/06/2022 22:00	4.3	D	45	No	41	NA
NM2	29/06/2022 10:00	5.7	D	55	No	NM	NA
NM3	28/06/2022 20:15	3.3	E	50	No	IA	NA
NM3	28/06/2022 23:32	2.8	D	45	Yes	<25	Nil
NM3	29/06/2022 11:37	5.2	C	55	No	40	NA
NM4	28/06/2022 19:36	2.9	D	50	Yes	<30	Nil
NM4	28/06/2022 23:00	2.7	E	45	Yes	<30	Nil
NM4	29/06/2022 11:06	5.5	D	55	No	45	NA

- Notes:
1. Noise criteria apply under all meteorological conditions except those detailed in Section 2.5.
 2. Site only $L_{Aeq,15\text{minute}}$ attributed to Borg including modifying factors if applicable.
 3. Bold results in red indicate exceedance of criterion (if applicable).
 4. NA in exceedance column means atmospheric conditions outside conditions specified, therefore criterion was not applicable.

4.4 Atmospheric conditions

Atmospheric condition data measured by the operator during each measurement using a Kestrel hand-held weather meter are shown in Table 4.3. The wind speed, direction and temperature were measured at approximately 1.8 metres. Attended noise monitoring is not undertaken during rain, hail, or wind speeds above 5 m/s at microphone height.

Table 4.3 Measured atmospheric conditions

Location	Start Date and Time	Temperature °C	Wind Speed m/s	Wind Direction ° Magnetic North ¹	Cloud Cover 1/8s
NM1	28/06/2022 19:05	6	0.0	-	0
NM1	28/06/2022 22:27	6	1.1	250	8
NM1	29/06/2022 10:30	7	2.8	80	4
NM2	28/06/2022 18:35	5	1.2	270	0
NM2	28/06/2022 22:00	6	1.6	240	7
NM2	29/06/2022 10:00	6	3.1	130	3
NM3	28/06/2022 20:15	5	0.4	260	3
NM3	28/06/2022 23:32	6	1.1	250	8
NM3	29/06/2022 11:37	11	2.0	100	3
NM4	28/06/2022 19:36	4	0.6	300	0
NM4	28/06/2022 23:00	6	3.3	270	8
NM4	29/06/2022 11:06	9	2.7	80	3

Note" 1. "-" indicates calm conditions at monitoring location.

Meteorological data for compliance assessment is sourced from Borg AWS.

5 Summary

Global Acoustics (now part of EMM) was engaged by Borg Manufacturing Pty Ltd to undertake a noise verification study for commissioning of material handling equipment at the Borg panel manufacturing facility (Borg) at Oberon, NSW. The purpose of the survey was to quantify and describe the acoustic environment around the site and compare results with specified limits.

Condition B20(B) of the Borg Development Consent SSD 7016 requires a noise validation survey within three months of commissioning of material handling equipment, with assessment against noise limits specified in Condition B16. Commissioning of the material handling equipment was completed on 1 June 2022.

Attended environmental noise monitoring described in this report was done during the day, evening, and night periods of 28 and 29 June 2022 at four monitoring locations. Borg was confirmed to be fully operating during all measurements.

Borg operations complied with the relevant criteria at all monitoring locations. Criteria may not always be applicable due to meteorological conditions at the time of monitoring.

Appendix A

Calibration certificates

A.1 Calibration certificates



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

Sound Level Meter IEC 61672-3:2013 Calibration Certificate Calibration Number C22373

Client Details		EMM Consulting Suite 6, Level 1, 146 Hunter Street Newcastle NSW 2300	
Equipment Tested/ Model Number :		Rion NA-28	
Instrument Serial Number :		01070590	
Microphone Serial Number :		08184	
Pre-amplifier Serial Number :		52329	
Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature : 25.7°C		Ambient Temperature : 25.4°C	
Relative Humidity : 31.9%		Relative Humidity : 32.4%	
Barometric Pressure : 100.18kPa		Barometric Pressure : 100.11kPa	
Calibration Technician : Lucky Jaiswal		Secondary Check: Max Moore	
Calibration Date : 9 Jun 2022		Report Issue Date : 20 Jun 2022	
Approved Signatory :		Ken Williams	
Clause and Characteristic Tested	Result	Clause and Characteristic Tested	Result
12: Acoustical Sig. tests of a frequency weighting	Pass	17: Level linearity incl. the level range control	Pass
13: Electrical Sig. tests of frequency weightings	Pass	18: Toneburst response	Pass
14: Frequency and time weightings at 1 kHz	Pass	19: C Weighted Peak Sound Level	Pass
15: Long Term Stability	Pass	20: Overload Indication	Pass
16: Level linearity on the reference level range	Pass	21: High Level Stability	Pass

The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

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

Uncertainties of Measurement -			
Acoustic Tests		Environmental Conditions	
125Hz	±0.13dB	Temperature	±0.1°C
1kHz	±0.13dB	Relative Humidity	±1.9%
8kHz	±0.14dB	Barometric Pressure	±0.014kPa
Electrical Tests	±0.13dB		

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



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

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

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



**Acoustic
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**Sound Calibrator
IEC 60942:2017**

Calibration Certificate

Calibration Number C22374

Client Details		EMM Consulting Suite 6, Level 1, 146 Hunter Street Newcastle NSW 2300
Equipment Tested/ Model Number :		Pulsar Model 106
Instrument Serial Number :		74813
Atmospheric Conditions		
Ambient Temperature :		25.8°C
Relative Humidity :		33.6%
Barometric Pressure :		100.19kPa
Calibration Technician :	Lucky Jaiswal	Secondary Check: Max Moore
Calibration Date :	09 Jun 2022	Report Issue Date : 20 Jun 2022
Approved Signatory :		Ken Williams

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

Nominal Level	Nominal Frequency	Measured Level	Measured Frequency
94	1000	94.09	1000.30

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

Uncertainties of Measurement -			
Specific Tests		Environmental Conditions	
Generated SPL	±0.10dB	Temperature	±0.1°C
Frequency	±0.13%	Relative Humidity	±1.9%
Distortion	±0.20%	Barometric Pressure	±0.014kPa

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



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

Acoustic Research Labs Pty Ltd is NATA Accredited Laboratory Number 14172.
Accredited for compliance with ISO/IEC 17025 - Calibration.

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

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration and inspection reports.

PAGE 1 OF 1

Appendix B

Regulatory requirements

B.1 Development Consent SSD 7016 MOD 4

Operational Noise Limits

B16 The Applicant must ensure that noise generated by the Development does not exceed the noise limits in **Table 2**.

Table 2: Noise Limits dB(A)

Location	Day	Evening	Night
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)
All sensitive receivers	55	50	45

Note: Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

B20B Within three months of commissioning the materials handling equipment approved for installation and operation under SSE 7016 MOD 3, the Applicant must undertake a Noise Verification Study for the Department to the satisfaction of the Secretary. The Study must:

- be undertaken by a suitably qualified expert;
- include an analysis of compliance with noise limits specified in Condition B16;
- include an outline of management actions to be taken to address any exceedances of the limits specified in Condition B16; and
- describe the contingency measures in the event management actions are not effective in reducing noise levels to an acceptable level.

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