



Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

August 2022



→ The Power of Commitment

GHD Pty Ltd | ABN 39 008 488 373



133 Castlereagh Street, Level 15

Sydney, New South Wales 2000, Australia

T +61 2 9239 7100 | F +61 2 9239 7199 | E sydmail@ghd.com | ghd.com

Author	Chris Gordon
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1. Introduction

GHD Pty Ltd (GHD) has been engaged by Port Authority of New South Wales (Port Authority) to undertake compliance noise monitoring, as required by the *Port Noise Policy (Port Authority, 2020)*.

This report provides the details of the compliance noise monitoring for all vessels at berth during August 2022, as determined using the noise monitoring system. A detailed description of the permanent noise monitoring system including a map of monitoring locations is provided in the Noise Monitoring Plan, available on Port Authority's website.

2. Noise monitoring details and vessel schedule

Client	Company details	Noise monitor name	Noise monitor location	Noise monitor details / settings	Noise monitor serial numbers	Monthly calibration variance
Port Authority of New South Wales	GHD Pty Ltd Member of the Association of Australasian Acoustical Consultants (AAAC)	L01	Grafton Street, Balmain	Meter details Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass	14529640	Initial calibration level 92.6 dBA Min. deviation = 0.2 dB Max. deviation = 0.3 dB
		L02	Maintenance Building on White Bay		14529642	Initial calibration level 91.5 dBA Min. deviation = 0.2 dB Max. deviation = 0.3 dB
	Lead staff are Members of the Australian Acoustical Society (AAS)	L03	Adjacent to White Bay 2	Meter settings A-weighted Fast time response 15 minute intervals	14529643	Initial calibration level 91.7 dBA Min. deviation = 0.1 dB Max. deviation = 0.2 dB
		L04	Onsite at Glebe Island		14529644	Initial calibration level 91.4 dBA Out of use during August due to damage
Vessel name	Arrival date and time		Departure date and time		Berth location	Applicable noise monitoring location/s
Akuna	August 10, 2022 / 07:19		August 12, 2022 / 18:30		GLB8	L03
Mareeba	August 16, 2022 / 08:56		August 20, 2022 / 04:00		GLB7	L03
Tawaki	August 25, 2022 / 20:10		August 30, 2022 / 08:30		GLB7	L03
Pioneer	August 30, 2022 / 12:56		September 03, 2022 / 12:00		GLB7	L03
Kondili	August 31, 2022 / 19:00		September 03, 2022 / 14:30		GLB8	L03

3. Compliance summary

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)			Vessel Noise Trigger Levels, dBA			Compliance ¹	
			Day ² L _{Aeq} (15 hr)	Night ³ L _{Aeq} (1 hr)	Night ³ L _{Amax}	Day ² L _{Aeq} (15 hr)	Night ³ L _{Aeq} (1 hr)	Night ³ L _{Amax}	Day	Night
Akuna	Aug 10 - Aug 12	L03	53	48	60	60	55	65	Yes	Yes
Mareeba	Aug 16 - Aug 20	L03	54	52	65	60	55	65	Yes	Yes
Tawaki	Aug 25 - Aug 29	L03	56	52	59	60	55	65	Yes	Yes
Pioneer	Aug 30 - Sep 3	L03	54	53	59	60	55	65	Yes	Yes
Kondili	Aug 31 - Sep 3	L03	51	49	59	60	55	65	Yes	Yes

Note: 1) If non-compliance is detected, a detailed investigation of the results will be undertaken and reported separately if required

Note: 2) Daytime period (7 am to 10 pm) – 15 hour logarithmic average

Note: 3) Night-time (10 pm to 7 am) – worst case 1 hour period

4. Detailed results

4.1 Akuna – August 10 – August 12, 2022 (GLB8)

4.1.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
August 10, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	48	No	No	55	Yes
			L _{Amax}	58	-	-	65	Yes
August 11, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	48	No	No	55	Yes
			L _{Amax}	60	-	-	65	Yes
August 12, 2022	Day	L03	L _{Aeq} , 15 hour ¹	52	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The Port Noise Policy does not currently apply the Noise Policy for Industry (NPI) method modifying factor for low frequency noise. A 2 dB penalty for daytime and a 5 dB penalty for the evening/night-time period would apply when assessed in accordance with Fact Sheet 3 Corrections for annoying noise characteristics from the EPA's Noise Policy for Industry Further investigation is currently being undertaken to determine impacts from low frequency noise from vessels.

4.1.2 Additional information

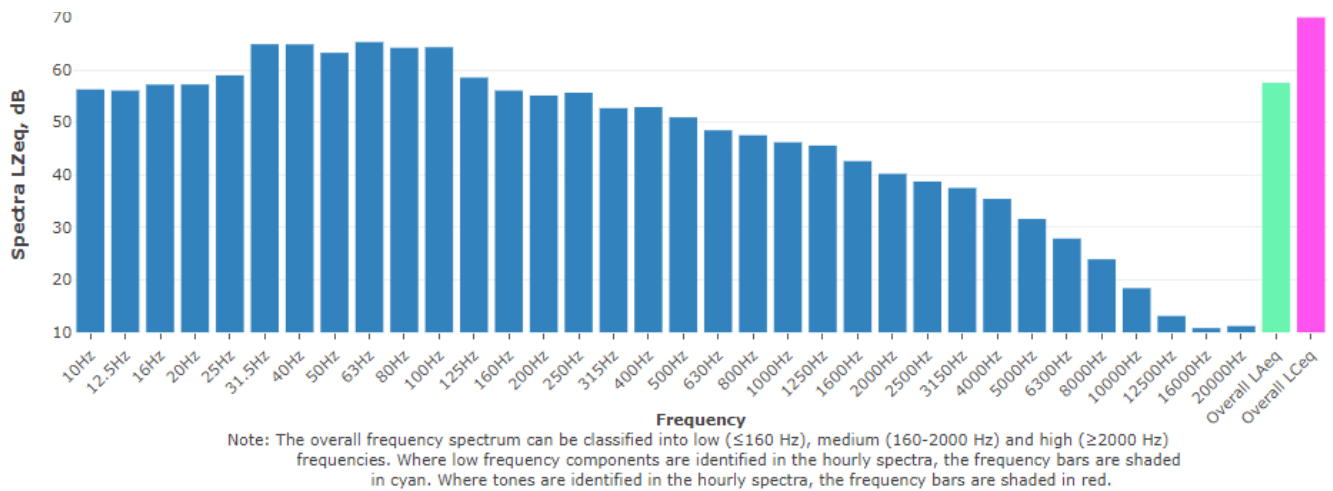


Figure 4.1 Typical vessel spectrum – noise level at L03

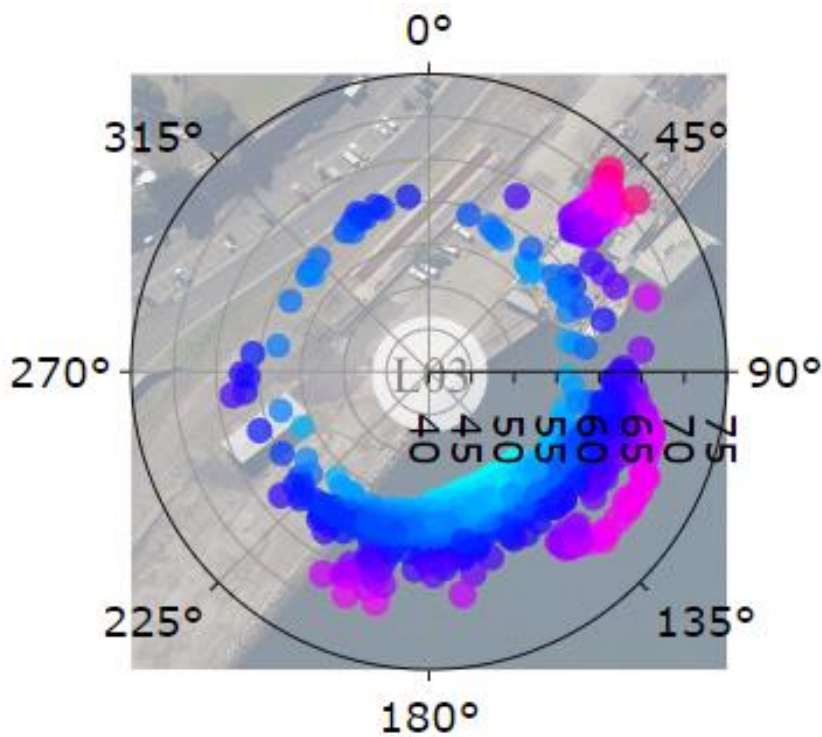


Figure 4.2 Typical vessel polar (directional) plot

4.2 Mareeba – August 16 – August 20, 2022 (GLB7)

4.2.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
August 16, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	52	No	No	55	Yes
			L _{Amax}	61	-	-	65	Yes
August 17, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	No	No	55	Yes
			L _{Amax}	60	-	-	65	Yes
August 18, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	No	No	55	Yes
			L _{Amax}	65	-	-	65	Yes
August 19, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	Yes ⁴	55	Yes
			L _{Amax}	60	-	-	65	Yes

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The Port Noise Policy does not currently apply the Noise Policy for Industry (NPI) method modifying factor for low frequency noise. A 2 dB penalty for daytime and a 5 dB penalty for the evening/night-time period would apply when assessed in accordance with Fact Sheet 3 Corrections for annoying noise characteristics from the EPA's Noise Policy for Industry Further investigation is currently being undertaken to determine impacts from low frequency noise from vessels.

4.2.2 Additional information

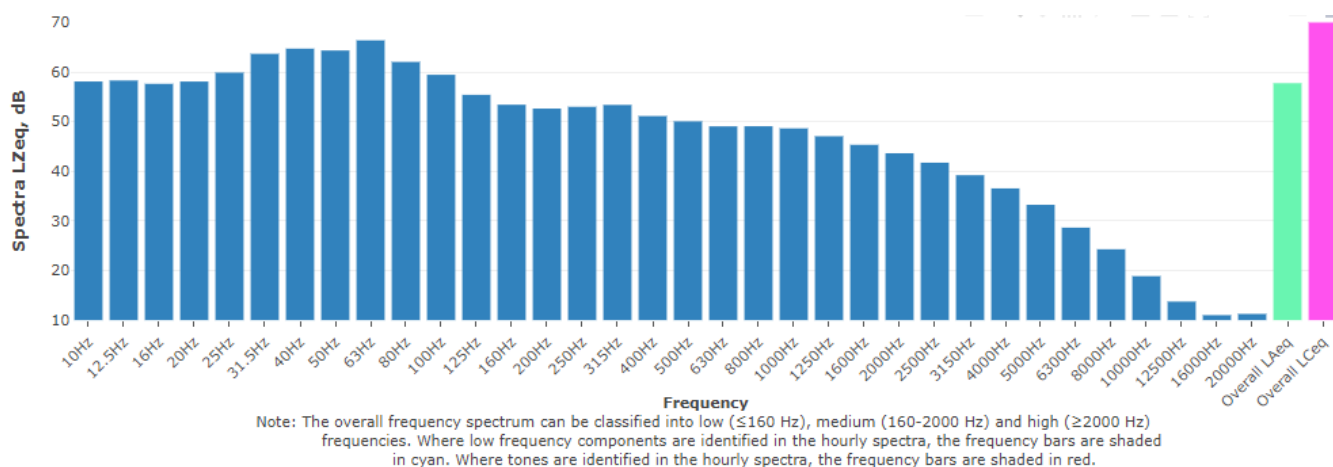


Figure 4.3 Typical vessel spectrum – noise level at L03

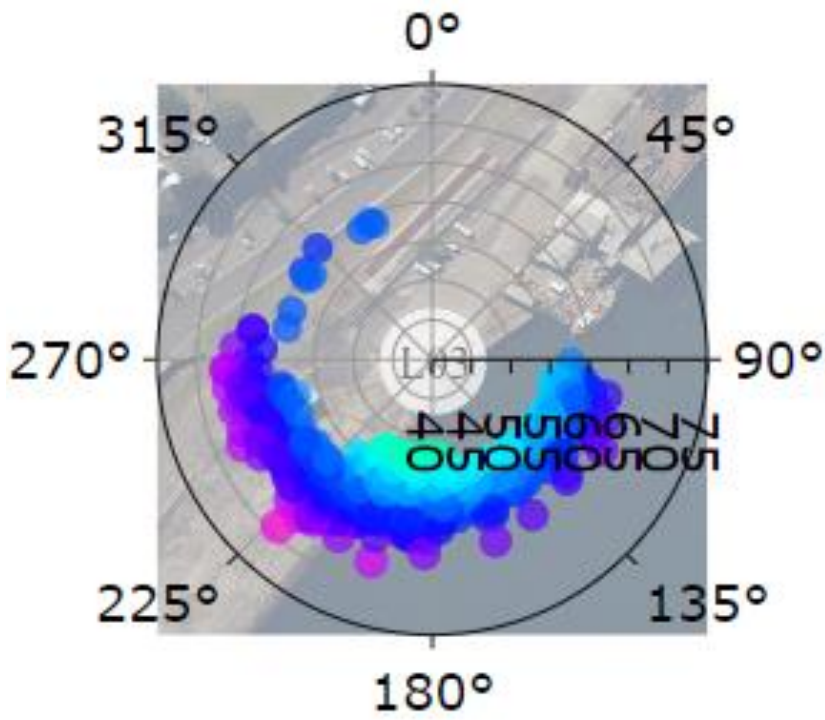


Figure 4.4 Typical vessel polar (directional) plot

4.3 Tawaki – August 25– August 30, 2022 (GLB7)

4.3.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
August 25, 2022	Day	L03	L _{Aeq} , 15 hour ¹	51	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	52	No	Yes ⁴	55	Yes
			L _{Amax}	58	-	-	65	Yes
August 26, 2022	Day	L03	L _{Aeq} , 15 hour ¹	56	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	No	Yes ⁴	55	Yes
			L _{Amax}	59	-	-	65	Yes
August 27, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	Yes ⁴	55	Yes
			L _{Amax}	59	-	-	65	Yes
August 28, 2022	Day	L03	L _{Aeq} , 15 hour ¹	50	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	47	No	Yes ⁴	55	Yes
			L _{Amax}	57	-	-	65	Yes
August 29, 2022	Day	L03	L _{Aeq} , 15 hour ¹	52	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	No	Yes ⁴	55	Yes
			L _{Amax}	59	-	-	65	Yes
August 30, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes ³	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The Port Noise Policy does not currently apply the Noise Policy for Industry (NPI) method modifying factor for low frequency noise. A 2 dB penalty for daytime and a 5 dB penalty for the evening/night-time period would apply when assessed in accordance with Fact Sheet 3 Corrections for annoying noise characteristics from the EPA's Noise Policy for Industry Further investigation is currently being undertaken to determine impacts from low frequency noise from vessels.

4.3.2 Additional information

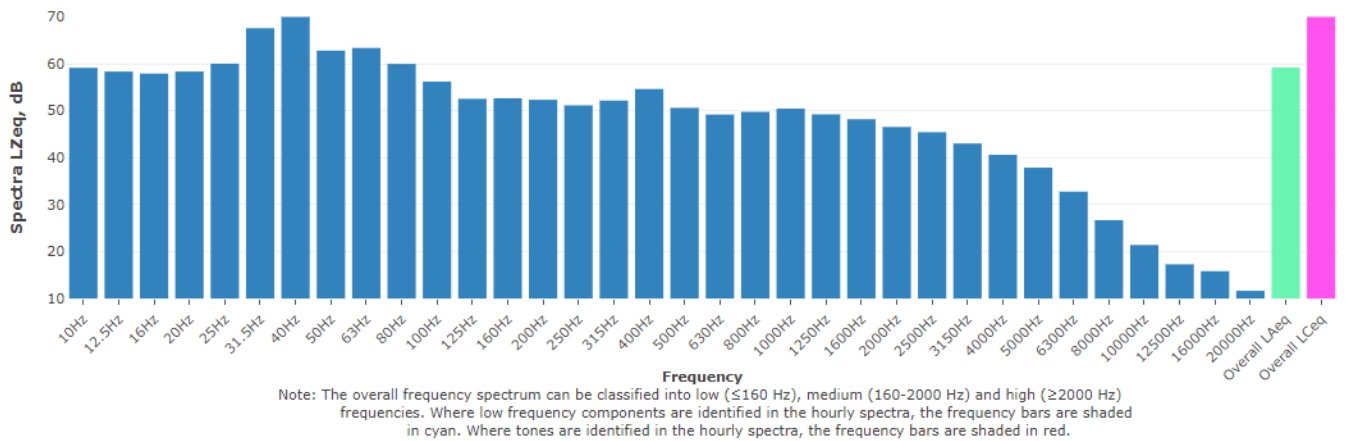


Figure 4.5 Typical vessel spectrum – noise level at L03

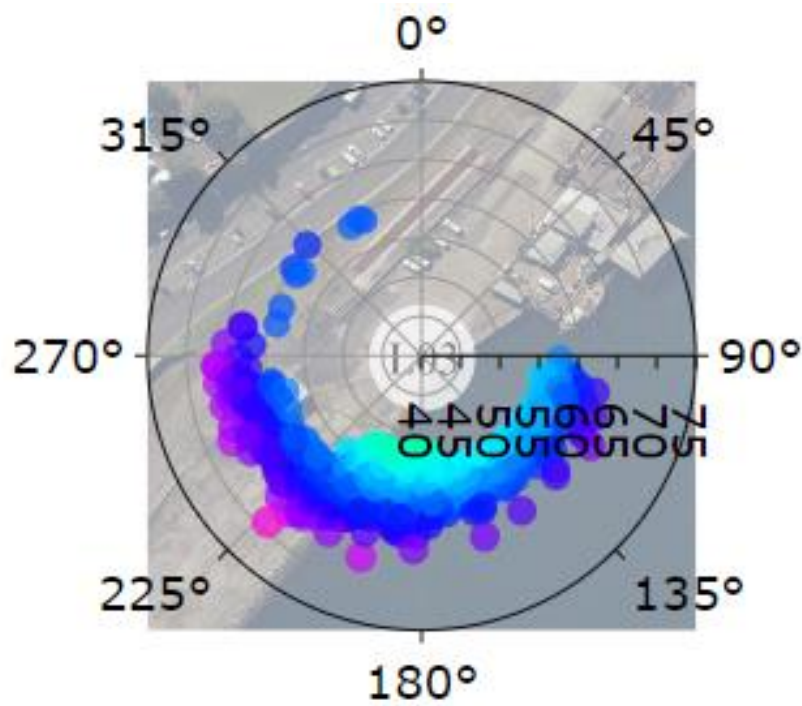


Figure 4.6 Typical vessel polar (directional) plot

4.4 Pioneer – August 30– September 3, 2022 (GLB7)

4.4.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
August 30, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	Yes ⁴	55	Yes
			L _{Amax}	58	-	-	65	Yes
August 31, 2022	Day	L03	L _{Aeq} , 15 hour ¹	55	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	57	-	-	65	Yes
Sept 1, 2022	Day	L03	L _{Aeq} , 15 hour ¹	55	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	n/a ⁵	n/a ⁵	n/a ⁵	55	Yes
			L _{Amax}	n/a ⁵	n/a ⁵	n/a ⁵	65	Yes
Sept 2, 2022	Day	L03	L _{Aeq} , 15 hour ¹	56	No	Yes ⁴	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
Sept 3, 2022	Day	L03	L _{Aeq} , 15 hour ¹	56	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	-	-	55	Yes
			L _{Amax}	-	-	-	65	Yes

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

Night-time period (10 pm to 7 am) – worst case 1 hour

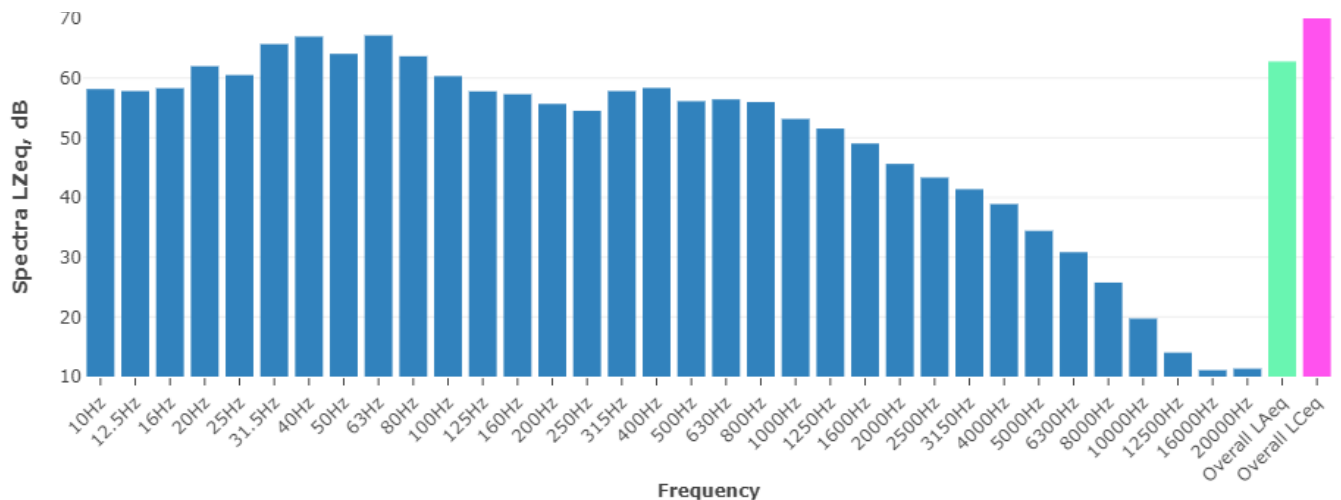
2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The Port Noise Policy does not currently apply the Noise Policy for Industry (NPI) method modifying factor for low frequency noise. A 2 dB penalty for daytime and a 5 dB penalty for the evening/night-time period would apply when assessed in accordance with Fact Sheet 3 Corrections for annoying noise characteristics from the EPA's Noise Policy for Industry Further investigation is currently being undertaken to determine impacts from low frequency noise from vessels.

5) The noise monitoring system went down due to a VPN failure between 1 pm on 1 September 2022 and 2 pm on 2 September 2022.

4.4.2 Additional information



Note: The overall frequency spectrum can be classified into low (≤ 160 Hz), medium (160-2000 Hz) and high (≥ 2000 Hz) frequencies. Where low frequency components are identified in the hourly spectra, the frequency bars are shaded in cyan. Where tones are identified in the hourly spectra, the frequency bars are shaded in red.

Figure 4.7 Typical vessel spectrum – noise level at L03

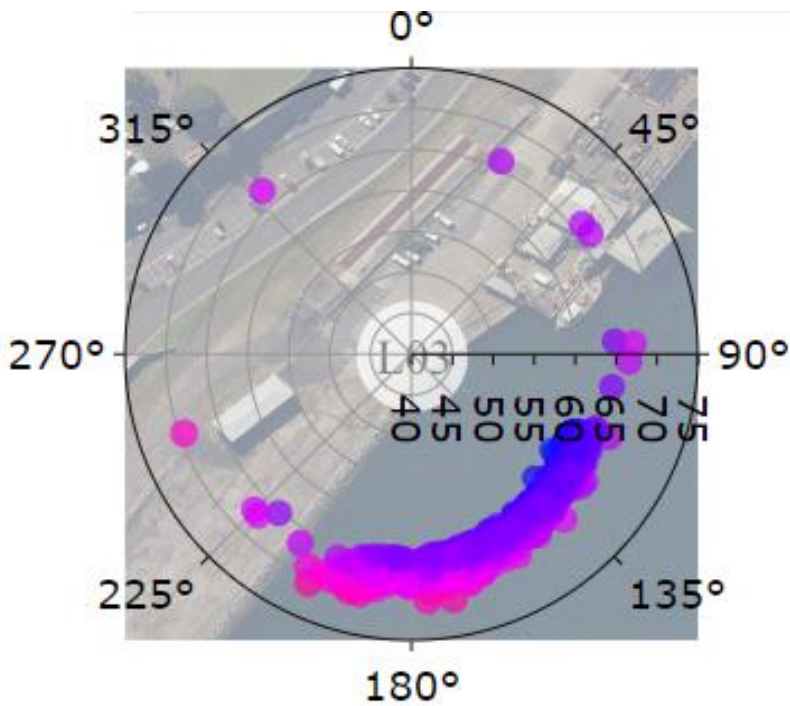


Figure 4.8 Typical vessel polar (directional) plot

4.5 Kondili – August 31 – September 3, 2022 (GLB8)

4.5.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
August 31, 2022	Day	L03	Pioneer (GLB7) and Kondili (GLB8) were both present at this time. See discussion in Section 4.6 below. Noise was attributed to the Pioneer at this time					
	Night							
Sep 01, 2022	Day	L03						
	Night							
Sept 02, 2022	Day	L03						
	Night							
Sept 03, 2022	Day	L03						
	Night							

Notes

- 1) Daytime period (7 am to 10 pm)– 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour
- 2) Inclusive of any penalties for modifying factors
- 3) LFN = Low Frequency Noise

4.5.2 Additional information

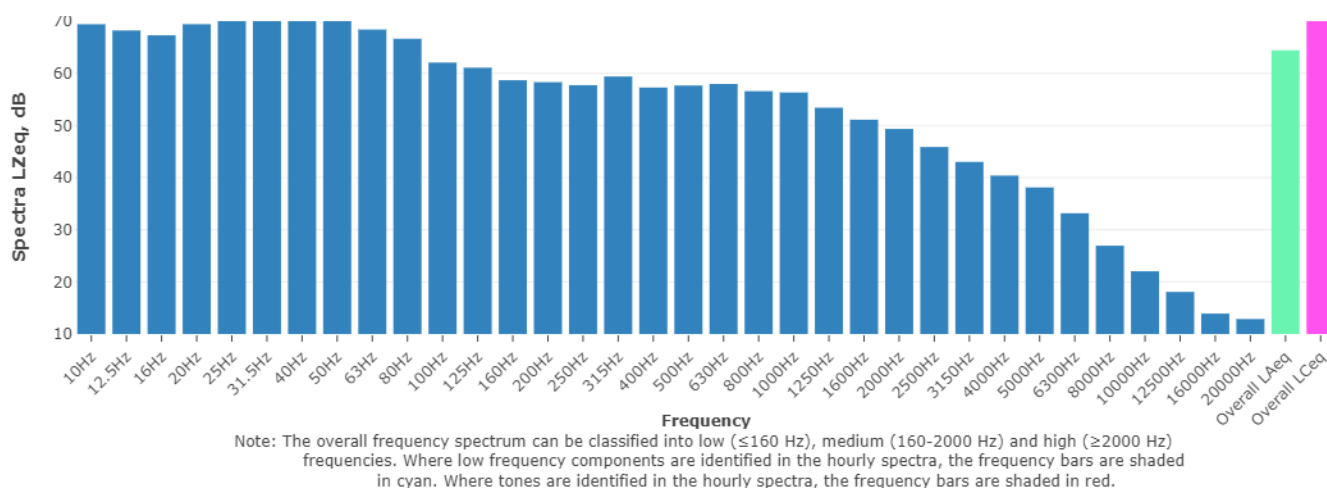


Figure 4.9 Typical vessel spectrum – noise level at L03

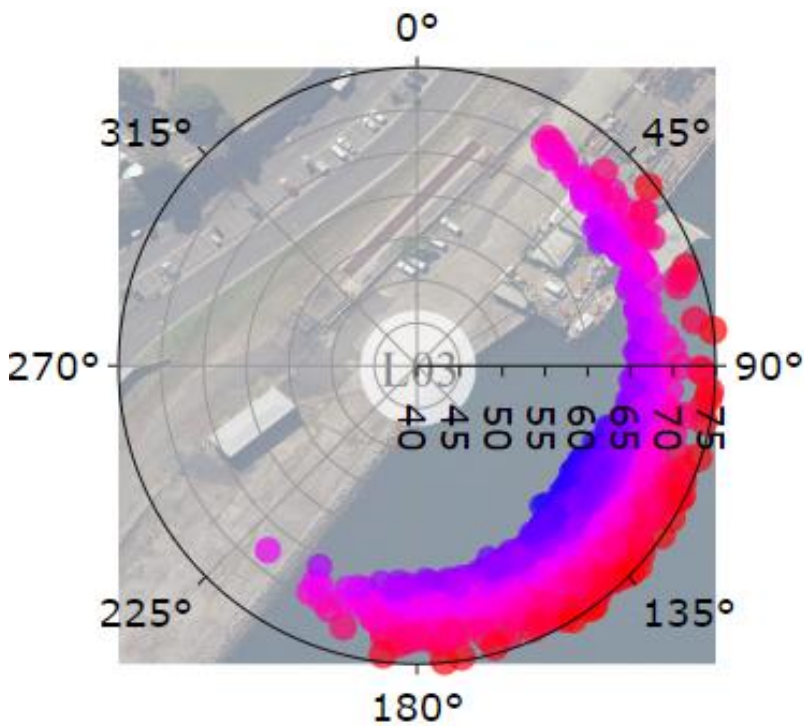


Figure 4.10 Typical vessel polar (directional) plot

4.6 Discussion regarding Pioneer and Kondili

Between August 31 and September 03 2022, the Pioneer (GLB7) and Kondili (GLB8) were simultaneously at berth. During this period, the Kondili vessel location was not being recorded by the vessel therefore the noise monitoring system was not able to identify whether the Kondili was berthed. All measured noise levels during this period were attributed to the Pioneer. The noise monitoring system indicated that there was a potential exceedance of the Vessel Noise Trigger Levels, therefore a detailed analysis was undertaken to determine the contribution from each vessel.

A review of the data was undertaken from this period, along with previously measured data. The contribution of each vessel has been estimated based on the following:

- Analysis of the measured noise levels from historical visits of both vessel
- Analysis of the measured noise levels between 31 August and 3 September 2022 when both the Pioneer and Kondili were berthed.

The estimated contributions are as follows:

Vessel	Assessment period	Estimated contribution, dBA
Pioneer	Day	54
	Night	53
Kondili	Day	51
	Night	49



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