



Monthly compliance noise monitoring report – Sept 22

Glebe Island / White Bay

Port Authority of New South Wales

September 2022



→ The Power of Commitment

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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 September 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	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
	Member of the Association of Australasian Acoustical Consultants (AAAC)	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 = -0.3 dB Max. deviation = 0.2 dB
		L04	Onsite at Glebe Island		14529644	Initial calibration level 91.4 dBA Out of use during September due to damage
Vessel name	Arrival date and time		Departure date and time		Berth location	Applicable noise monitoring location/s
Bulk vessels						
Kondili	September 18, 2022 / 03:35		September 20, 2022 / 10:00		GLB8	L03
Koga Revolution	September 24, 2022 / 20:00		October 2, 2022 / 13:00		WHT4	L02
Pioneer	September 24, 2022 / 12:24		September 29, 2022 / 01:00		GLB7	L03
Tawaki	September 29, 2022 / 04:00		October 3, 2022 / 04:30		GLB7	L03

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Cruise vessels				
Pacific Explorer	September 5, 2022 / 06:33	September 5, 2022 / 16:06	WBCT	L01
Pacific Explorer	September 23, 2022 / 06:59	September 23, 2022 / 16:26	WBCT	L01

3. Compliance summary

3.1 Bulk vessels

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
Kondili	Sep 18 – Sep 20	L03	54	54	64	60	55	65	Yes	Yes
Koga Revolution	Sep 24 – Oct 2	L02	56	55	62	60	55	65	Yes	Yes
Pioneer	Sep 24 – Sep 29	L03	55	54	66 ⁴	60	55	65	Yes	No ⁴
Tawaki	Sep 29 – Oct 3	L03	57	54	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

Note: 4) One minor exceedance of the L_{Amax} criteria (1 dB) during the 4-day visit. The vessel is compliant at all other times.

3.2 Cruise vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA		Vessel Noise Trigger Levels, dBA		Compliance ¹	
			Day ² L _{Aeq} (15 hr)	Night ³ L _{Aeq} (9 hr)	Day ² L _{Aeq} (15 hr)	Night ³ L _{Aeq} (9 hr)	Day	Night
Pacific Explorer	5 Sept	L01	58	-	58	58	Yes	-
Pacific Explorer	23 Sept	L01	57	-	58	58	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) – 9 hour logarithmic average

4. Detailed results – bulk vessels

4.1 Kondili – September 18 – September 20, 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
September 17, 2022	Day	L03	L _{Aeq} , 15 hour ¹	-	-	-	-	-
	Night		L _{Aeq} , 1 hour ¹	51	No	No	55	Yes
			L _{Amax}	64	-	-	65	Yes
September 18, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	No	55	Yes
			L _{Amax}	58	-	-	65	Yes
September 19, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	60	-	-	65	Yes
September 20, 2022	Day	L03	L _{Aeq} , 15 hour ¹	52	No	No	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

4.1.2 Additional information

Frequency spectrum and polar plot were not able to be produced for this time period as the above data was manually processed. The vessel GPS data was not available at the time of this visit.

4.2 Koga Revolution – September 24 – October 2, 2022 (WHT4)

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
September 24, 2022	Day	L02	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	52	No	No	55	Yes
			L _{Amax}	53	-	-	65	Yes
September 25, 2022	Day	L02	L _{Aeq} , 15 hour ¹	52	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	No	No	55	Yes
			L _{Amax}	62	-	-	65	Yes
September 26, 2022	Day	L02	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
September 27, 2022	Day	L02	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	No	55	Yes
			L _{Amax}	58	-	-	65	Yes
September 28, 2022	Day	L02	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	No	55	Yes
			L _{Amax}	56	-	-	65	Yes
September 29, 2022	Day	L02	L _{Aeq} , 15 hour ¹	56	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
September 30, 2022	Day	L02	L _{Aeq} , 15 hour ¹	56	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
October 1, 2022	Day	L02	L _{Aeq} , 15 hour ¹	55	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	56	-	-	65	Yes
October 2, 2022	Day	L02	L _{Aeq} , 15 hour ¹	55	No	No	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

4.2.2 Additional information

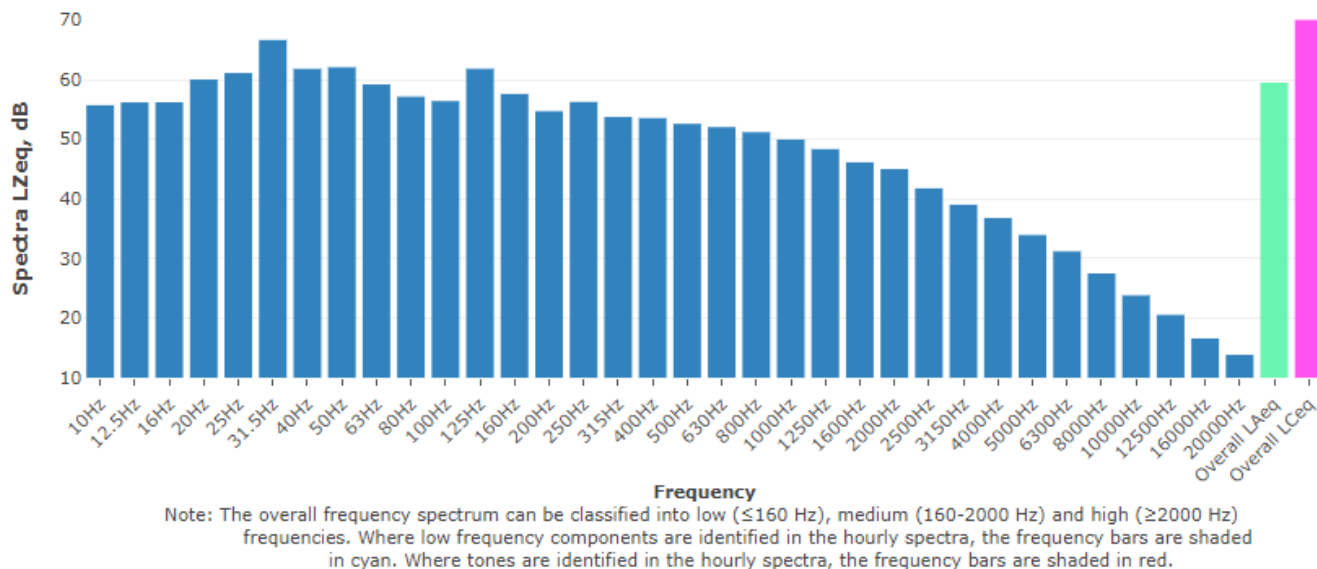


Figure 4.1 Typical vessel spectrum – noise level at L02

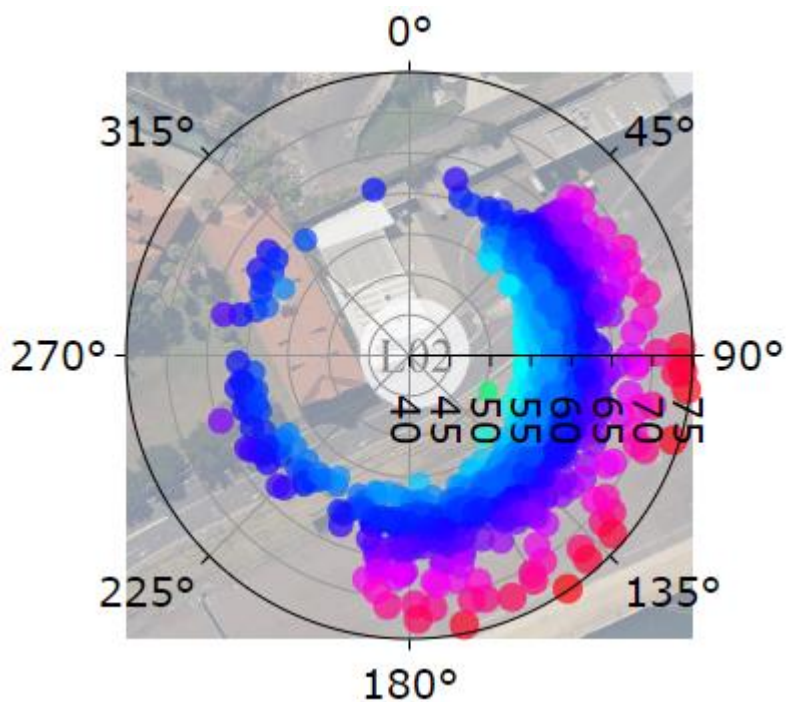


Figure 4.2 Typical vessel polar (directional) plot

4.3 Pioneer – September 24 – September 28, 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
September 24, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	No	55	Yes
			L _{Amax}	58	-	-	65	Yes
September 25, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	60	-	-	65	Yes
September 26, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	60	-	-	65	Yes
September 27, 2022	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	No	55	Yes
			L _{Amax}	66	-	-	65	No
September 28, 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

Notes

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

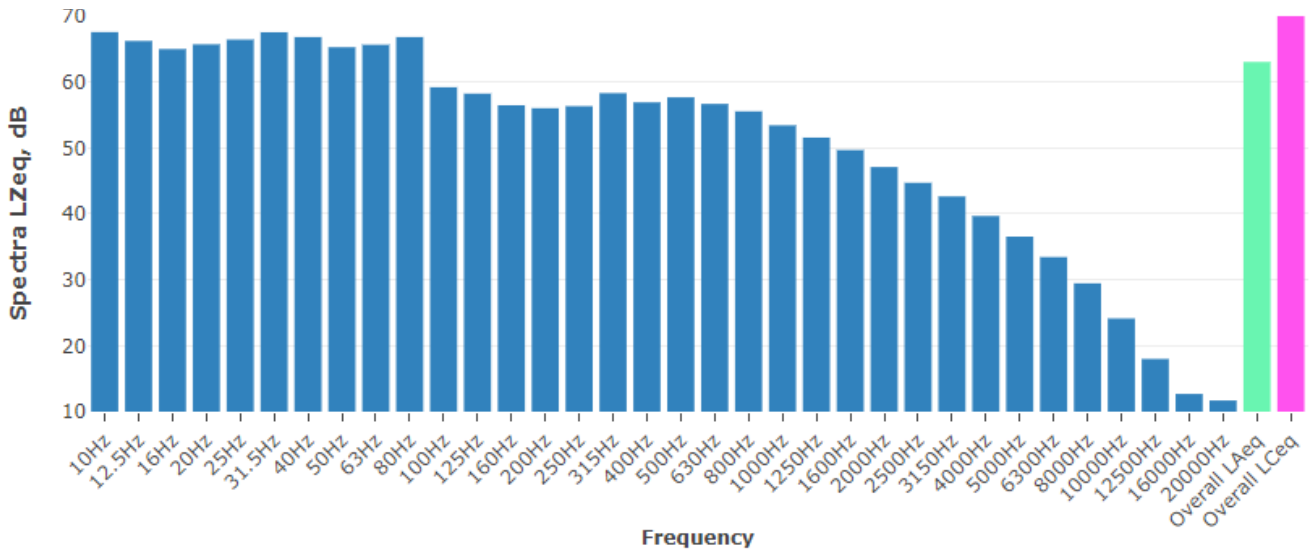
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) One minor exceedance of the L_{Amax} criteria (1 dB) during the 4-day visit. The vessel is compliant at all other times.

4.3.2 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 4.3 Typical vessel spectrum – noise level at L03

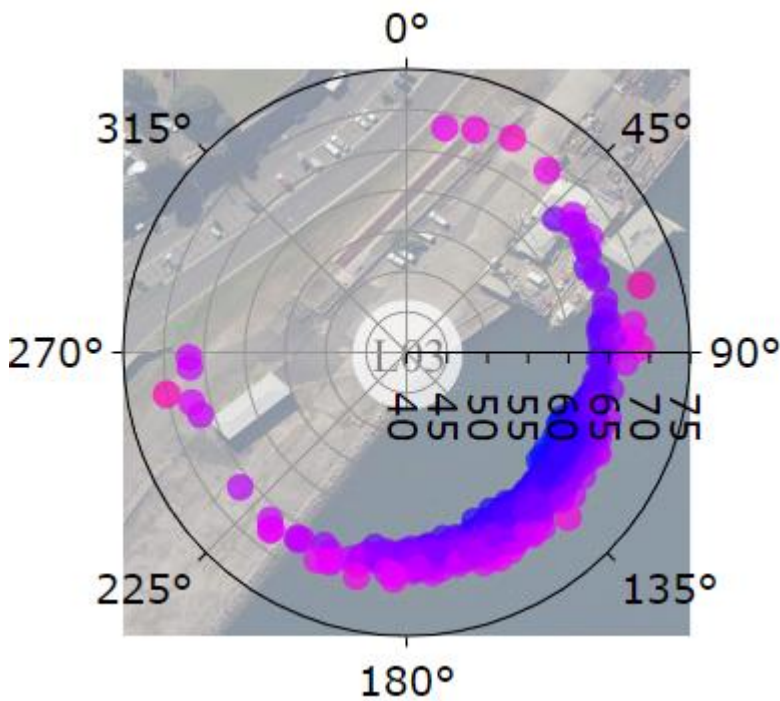


Figure 4.4 Typical vessel polar (directional) plot

4.4 Tawaki – September 29 – October 3, 2022 (GLB7)

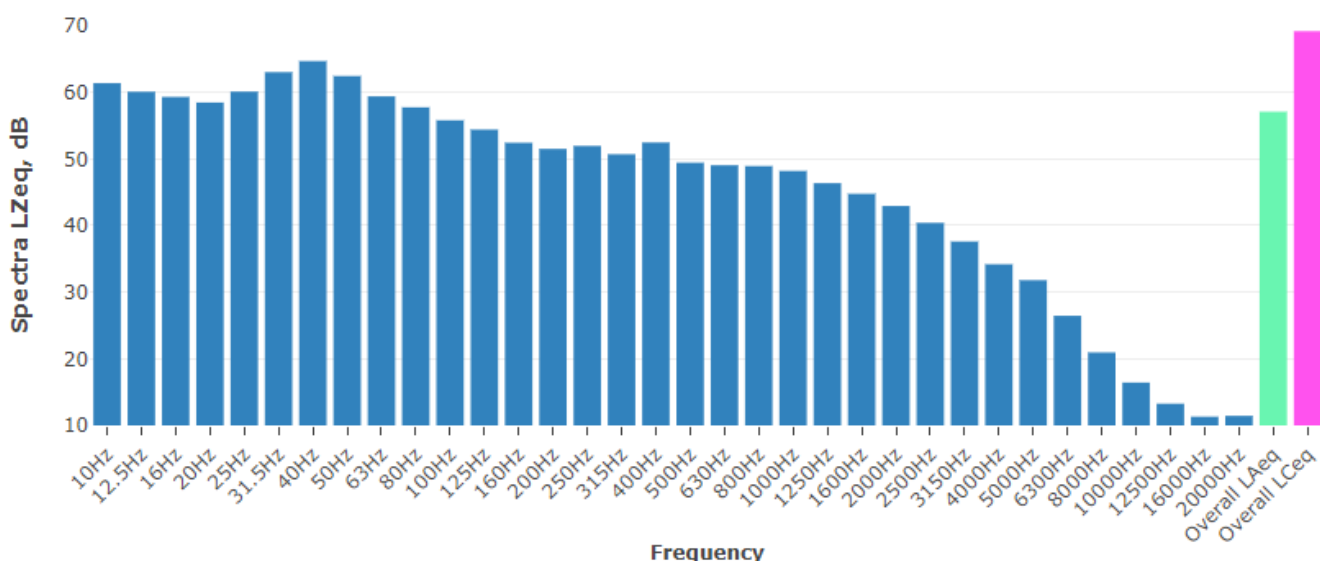
4.4.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance																		
September 29, 2022	Day	L03	L _{Aeq} , 15 hour ¹	57	No	Yes ⁴	60	Yes																		
	Night		L _{Aeq} , 1 hour ¹	52	No	Yes ⁴	55	Yes																		
			L _{Amax}	58	-	-	65	Yes																		
September 30, 2022	Day	L03	L _{Aeq} , 15 hour ¹	57	No	Yes ⁴	60	Yes																		
	Night		L _{Aeq} , 1 hour ¹	52	No	Yes ⁴	55	Yes																		
			L _{Amax}	59	-	-	65	Yes																		
October 1, 2022	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes ⁴	60	Yes																		
	Night		Noise levels during this period were assigned to the Wyuna. Based on the above data, this vessel is considered compliant. Information regarding the Wyuna will be contained in the October report.																							
October 2, 2022	Day	L03							Noise levels during this period were assigned to the Wyuna. Based on the above data, this vessel is considered compliant. Information regarding the Wyuna will be contained in the October report.																	
	Night														Noise levels during this period were assigned to the Wyuna. Based on the above data, this vessel is considered compliant. Information regarding the Wyuna will be contained in the October report.											
October 3, 2022	Day	L03																			Noise levels during this period were assigned to the Wyuna. Based on the above data, this vessel is considered compliant. Information regarding the Wyuna will be contained in the October report.					
	Night																									

Notes

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

4.4.2 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 4.5 Typical vessel spectrum – noise level at L03

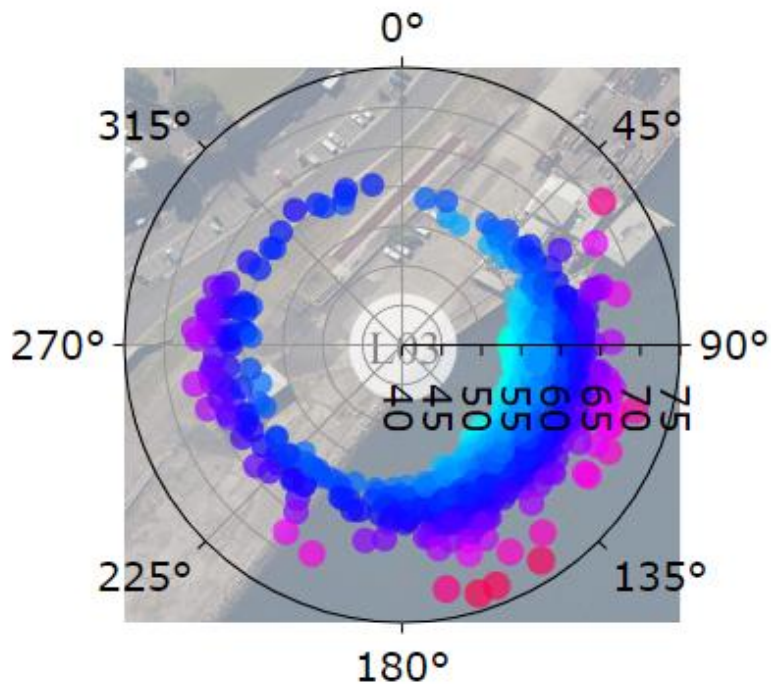


Figure 4.6 Typical vessel polar (directional) plot

5. Detailed results – cruise vessels

5.1 Pacific Explorer – September 2022 (WBCT)

5.1.1 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
September 5, 2022	Day	L01	L _{Aeq} , 15 hour ¹	58	Yes ⁴	Yes ⁵	58	Yes
	Night		L _{Aeq} , 9 hour ¹		-	-	58	Yes
September 23, 2022	Day	L01	L _{Aeq} , 15 hour ¹	57	Yes ⁴	Yes ⁵	58	Yes
	Night		L _{Aeq} , 9 hour ¹		-	-	58	Yes

Notes

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

Night-time period (10 pm to 7 am) – 9 hours

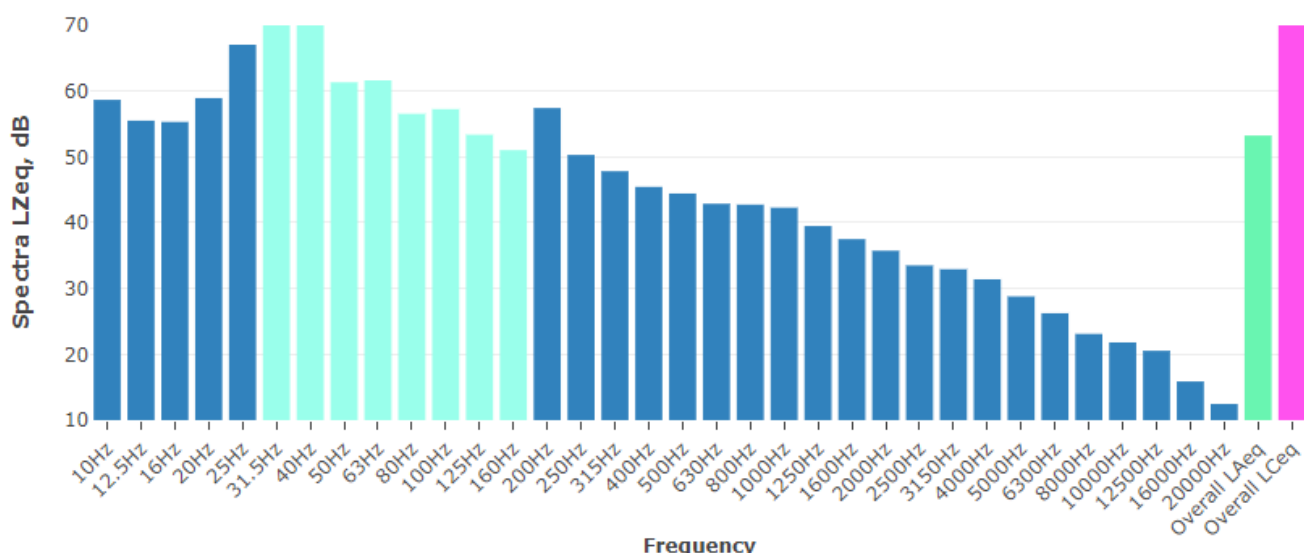
2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The vessel was determined to be tonal for one hour during each visit. These both occurred during the period between 3 pm and 4 pm. As the duration of the tonal noise was shorter than one hour in each case, a 5 dB penalty has not been applied. Note that the Noise Restriction Policy does not specifically refer to a penalty for tonality.

5) Note that the WBCT Noise Restriction Policy trigger level for excessive noise, which is based on the Noise Attenuation Program eligibility criteria, is inclusive of an assumption for low frequency noise for all cruise vessels. 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.

5.1.2 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 5.1 Typical vessel spectrum – noise level at L01

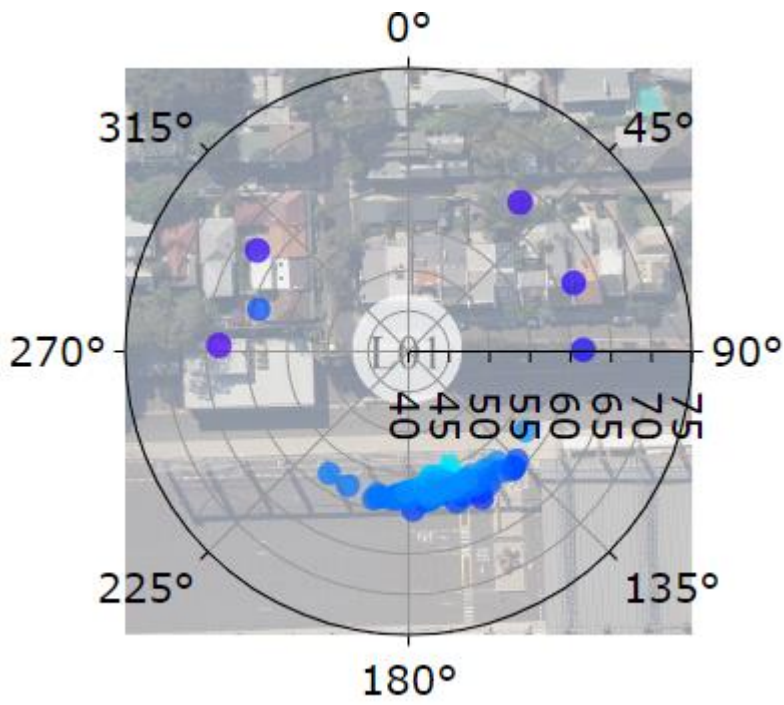


Figure 5.2 Typical vessel polar (directional) plot



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