



Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

June 2023



→ 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 sydmil@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 June 2023, 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) Lead staff are Members of the Australian Acoustical Society (AAS)	L01	Grafton Street, Balmain	Meter details Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass Meter settings A-weighted Fast time response 15 minute intervals	14529640	Initial calibration level 92.6 dBA Min. deviation = 0.3 dB Max. deviation = 0.4 dB
		L02	Maintenance Building on White Bay		14529642	Initial calibration level 91.5 dBA Min. deviation = 0.3 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529643	Initial calibration level 91.7 dBA Min. deviation = 0.2 dB Max. deviation = 0.3 dB
		L04	Onsite at Glebe Island		14529644	Initial calibration level 92.3 dBA Min. deviation = -0.1 dB Max. deviation = 0.0 dB
Vessel name	Arrival date and time	Departure date and time		Berth location	Applicable noise monitoring location/s	
Bulk vessels						
Luga	June 4, 2023 / 04:48	June 6, 2023 / 08:56		GLB8	L03	
CSL Reliance	June 10, 2023 / 21:57	June 13, 2023 / 23:57		GLB7	L03	
Luga	June 14, 2023 / 03:35	June 16, 2023 / 01:05		GLB8	L03	

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Pioneer	June 14, 2023 / 08:54	June 17, 2023 / 13:26	GLB7	L03
Cruise vessels				
Pacific Adventure	June 9, 2023 / 06:24	June 9, 2023 / 16:54	WBCT	L01
Pacific Adventure	June 30, 2023 / 06:48	June 30, 2023 / 20:13	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
Luga	June 4 – June 6	L03	57	56	67 ⁴	60	55	65	Yes	No
CSL Reliance	June 10 – June 13	L03	52	50	63	60	55	65	Yes	Yes
Luga	June 14 – June 16	L03	57	56	62	60	55	65	Yes	No
Pioneer	June 14 – June 17	L03	49	47	61	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) – 9 hour logarithmic average

Note 4) The maximum noise level shown in IMS was 67 dBA. A review of the data has determined that this maximum noise level event was unlikely to be associated with the vessel. The vessel was compliant with the L_{Amax} criteria at all other times.

3.2 Cruise vessels

Vessel	Dates at berth	Monitor location	Vessel Noise Level, dBA (inclusive of any modifying factor penalties)		Vessel Noise Trigger Levels, dBA		Compliance	
			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 ⁴	Night
Pacific Adventure	June 9	L01	57	-	N/A	58	N/A	-
Pacific Adventure	June 30	L01	57	-	N/A	58	N/A	-

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

Note: 4) Port Authority provides attenuation to a defined area of residences where noise modelling indicates that current noise levels reach or exceed 55 dBA **at night** ('attenuation eligibility trigger'). Under the White Bay Cruise Terminal Noise Restriction Policy, cruise ship noise which causes further residences than those currently identified to exceed the attenuation eligibility trigger is considered to be Excessive Noise. Hence under the Noise Restriction Policy a day time trigger level does not apply. The area of residences currently offered attenuation (ie meeting the 'attenuation eligibility trigger') is based on a reference cruise vessel intrusive noise level of 58 dBA at the nearest residence, which sets the Vessel Noise Trigger Level for assessing compliance at night.

Excessive noise is defined as "any noise including but not limited to engine, generator or ventilation noise which causes further residences than those currently identified to exceed the attenuation eligibility trigger."

4. Detailed results – bulk vessels

4.1 Luga – June 4 – June 6, 2023 (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
June 3, 2023	Day	L03	L _{Aeq} , 15 hour ¹	-	-	-	60	-
	Night		L _{Aeq} , 1 hour ¹	56	No	No	55	No
			L _{Amax}	67 ⁴	-	-	65	No
June 4, 2023	Day	L03	L _{Aeq} , 15 hour ¹	55	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	56	No	No	55	No
			L _{Amax}	62	-	-	65	Yes
June 5, 2023	Day	L03	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
June 6, 2023	Day	L03	L _{Aeq} , 15 hour ¹	57	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) The maximum noise level shown in IMS was 67 dBA. A review of the data has determined that this maximum noise level event was unlikely to be associated with the vessel. The vessel was compliant with the L_{Amax} criteria at all other times.

4.1.2 Discussion of exceedance

Noise levels during the night period for the duration of the period in which Luga was in port were consistently around 56 dBA, 1 dB above the compliance criteria. It is recommended that night-time attended noise monitoring be undertaken to confirm noise levels from vessel operations are non-compliant.

4.1.3 Additional information

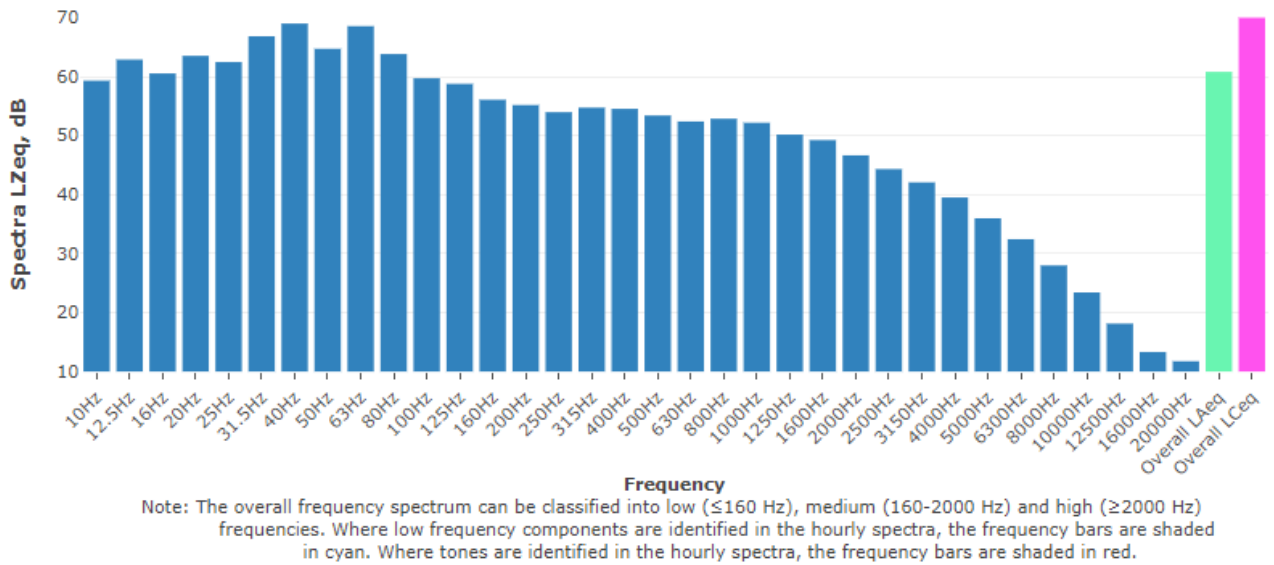


Figure 4.1 Typical vessel spectrum – noise level at L03

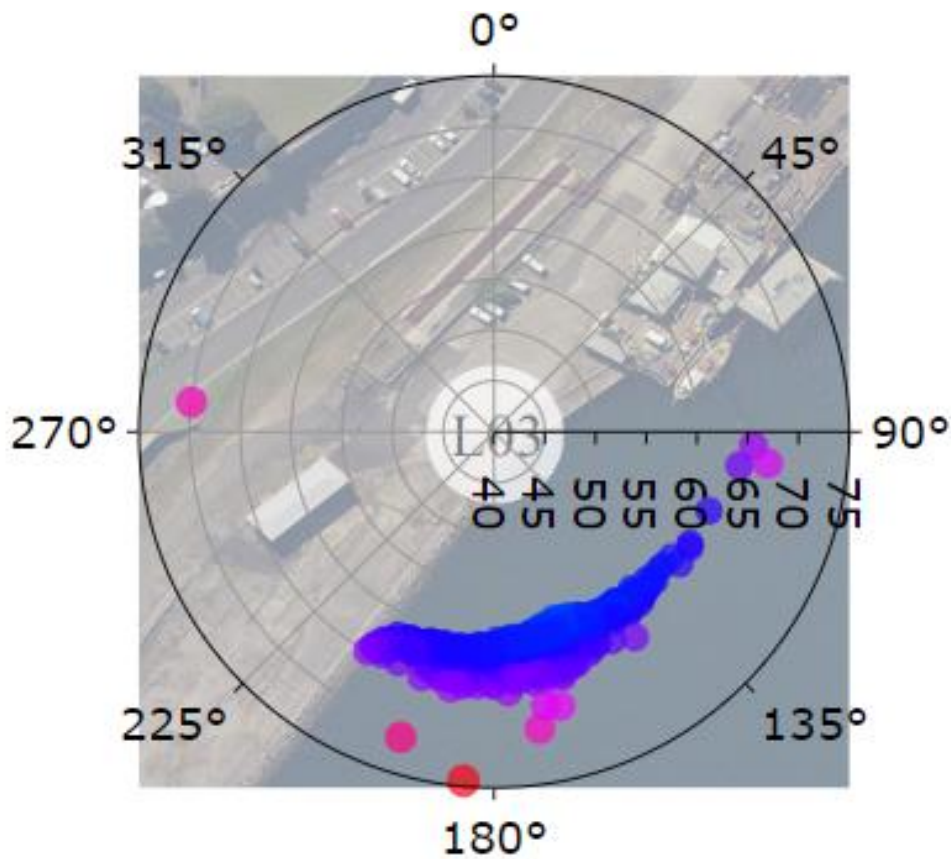


Figure 4.2 Typical vessel polar (directional) plot

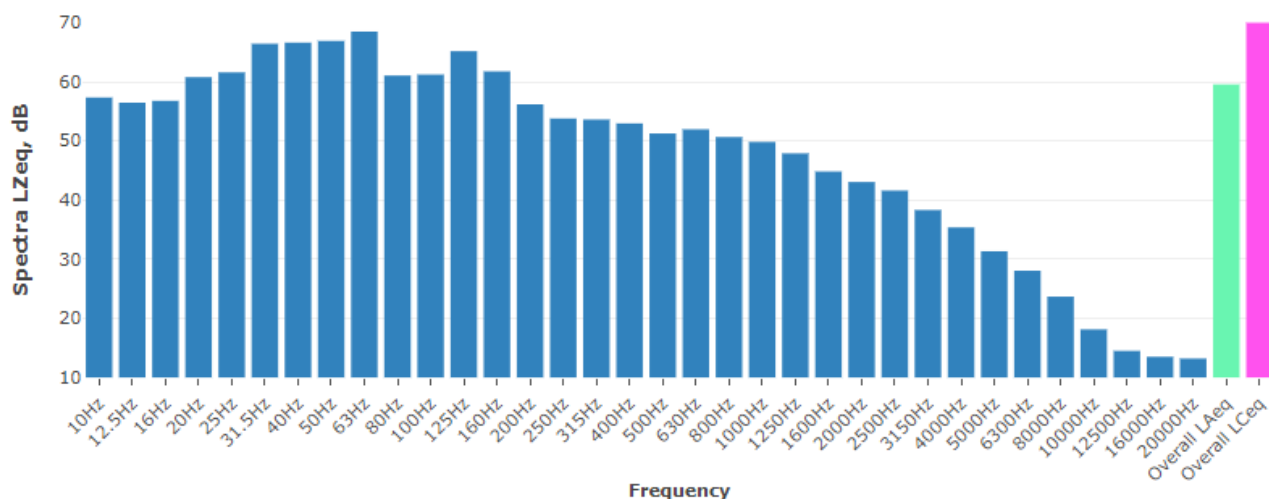
4.2 CSL Reliance – June 10 – June 13, 2023 (GLB7)

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
June 10, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	Yes	55	Yes
			L _{Amax}	62	-	-	65	Yes
June 11, 2023	Day	L03	L _{Aeq} , 15 hour ¹	51	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	49	No	Yes	55	Yes
			L _{Amax}	63	-	-	65	Yes
June 12, 2023	Day	L03	L _{Aeq} , 15 hour ¹	51	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	49	No	Yes	55	Yes
			L _{Amax}	61	-	-	65	Yes
June 13, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	49	No	Yes	55	Yes
			L _{Amax}	58	-	-	65	Yes

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
- Wyuna was shown as tonal for one hour only during this visit. Due to the low number, it is unlikely that the vessel is considered tonal during this visit.



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

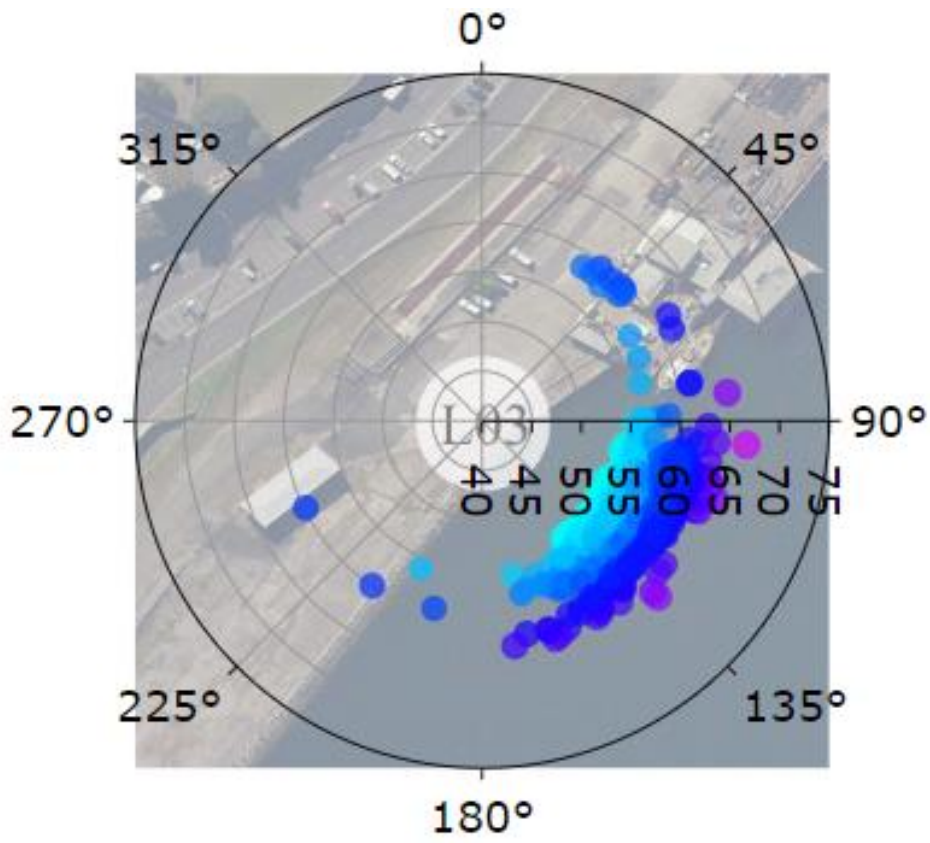


Figure 4.4 Typical vessel polar (directional) plot

4.3 Luga – June 14 – June 16, 2023 (GLB8)

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
June 13, 2023	Day	L03	L _{Aeq} , 15 hour ¹	-	-	-	60	-
	Night		L _{Aeq} , 1 hour ¹	56	No	No	55	No
			L _{Amax}	62	-	-	65	Yes
June 14, 2023	Day	L03	L _{Aeq} , 15 hour ¹	Luga (GLB8) and Pioneer (GLB7) and were both present at this time. See discussion in Section 4.5 below. Noise was attributed to the Luga at this time				
	Night		L _{Aeq} , 1 hour ¹					
			L _{Amax}					
June 15, 2023	Day	L03	L _{Aeq} , 15 hour ¹					
	Night		L _{Aeq} , 1 hour ¹					
			L _{Amax}					

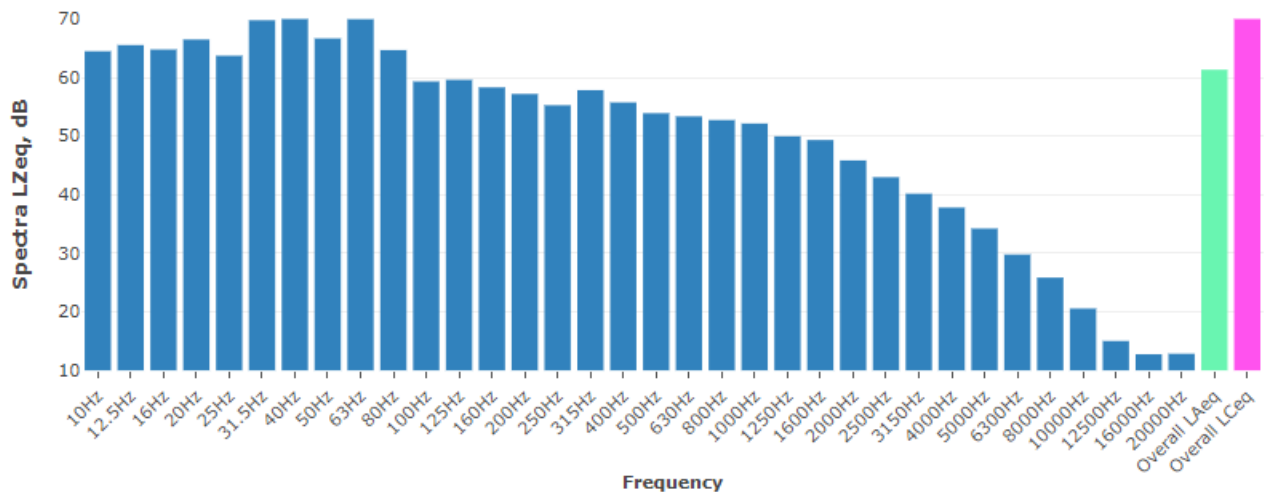
Notes

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

4.3.2 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 4.5 Typical vessel spectrum – noise level at L03 (Luga and Pioneer combined)

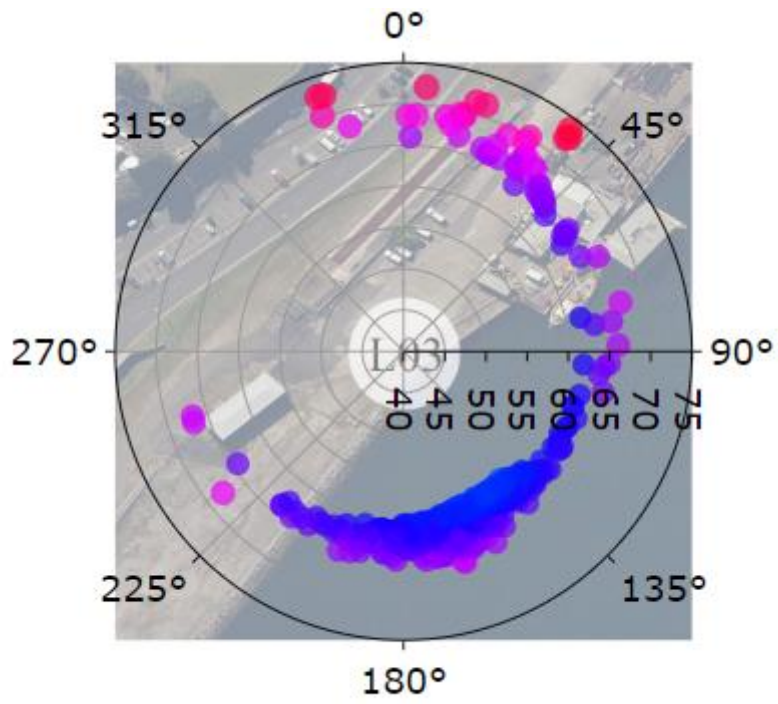


Figure 4.6 Typical vessel polar (directional) plot (Luga and Pioneer combined)

4.4 Pioneer – June 15 – June 17, 2023 (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
June 14, 2023	Day	L03	L _{Aeq} , 15 hour ¹	Luga (GLB8) and Pioneer (GLB7) and were both present at this time. See discussion in Section 4.5 below. Noise was attributed to the Luga at this time				
	Night		L _{Aeq} , 1 hour ¹					
			L _{Amax}					
June 15, 2023	Day	L03	L _{Aeq} , 15 hour ¹					
	Night		L _{Aeq} , 1 hour ¹					
			L _{Amax}					
June 16, 2023	Day	L03	L _{Aeq} , 15 hour ¹	49	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	47	No	Yes	55	Yes
			L _{Amax}	61	-	-	65	Yes
June 17, 2023	Day	L03	L _{Aeq} , 15 hour ¹	49	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

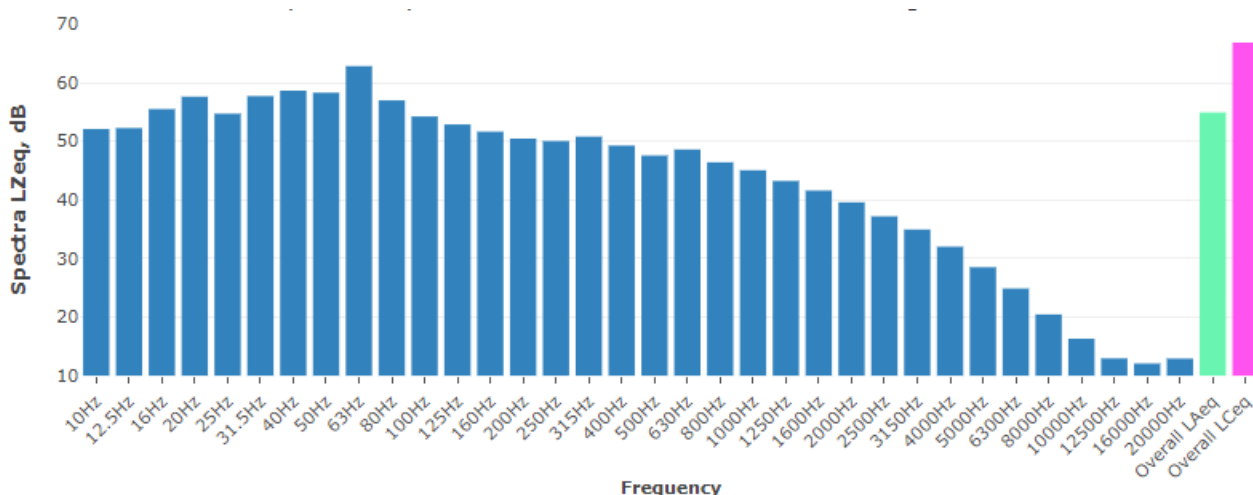
Notes

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

4.4.2 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

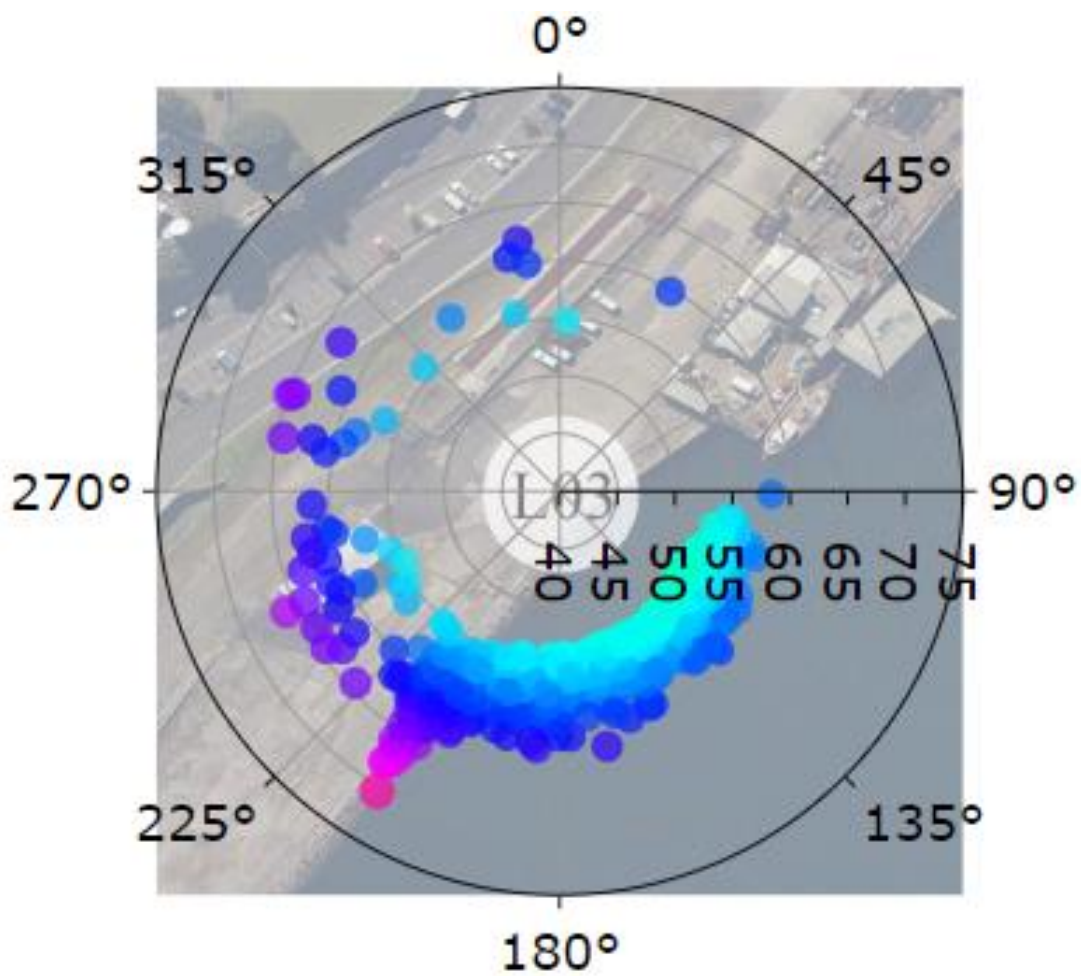


Figure 4.8 Typical vessel polar (directional) plot

4.5 Discussion regarding Luga and Pioneer

Between June 14 and June 16, 2023, the Pioneer (GLB7) and Luga (GLB8) were simultaneously at berth. During this period, the noise monitoring system attributed the measured noise levels to the Luga. 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 the Luga has been estimated based analysis of the measured noise levels from historical visits of this vessel, and data obtained prior to the arrival of the Pioneer. The contribution of the Pioneer has been estimated based analysis of the measured noise levels from historical visits of this vessel, and data obtained following the departure of the Luga.

The noise level measured prior to the arrival of the Pioneer was 56 dBA during the night. While the noise level attributed to the Pioneer following the departure of the Luga was 49 dBA during the day period and 47 dBA during the night period. The noise levels measured during the period both vessels were at berth were 58 dBA during the day and 57 dBA at night.

The estimated contribution is as follows:

Vessel	Assessment period	Noise descriptor	Estimated contribution, dBA ²
Luga	Day	L _{Aeq} , 15 hour ¹	57
	Night	L _{Aeq} , 1 hour ¹	56
Pioneer	Day	L _{Aeq} , 15 hour ¹	49
	Night	L _{Aeq} , 1 hour ¹	47
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			



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