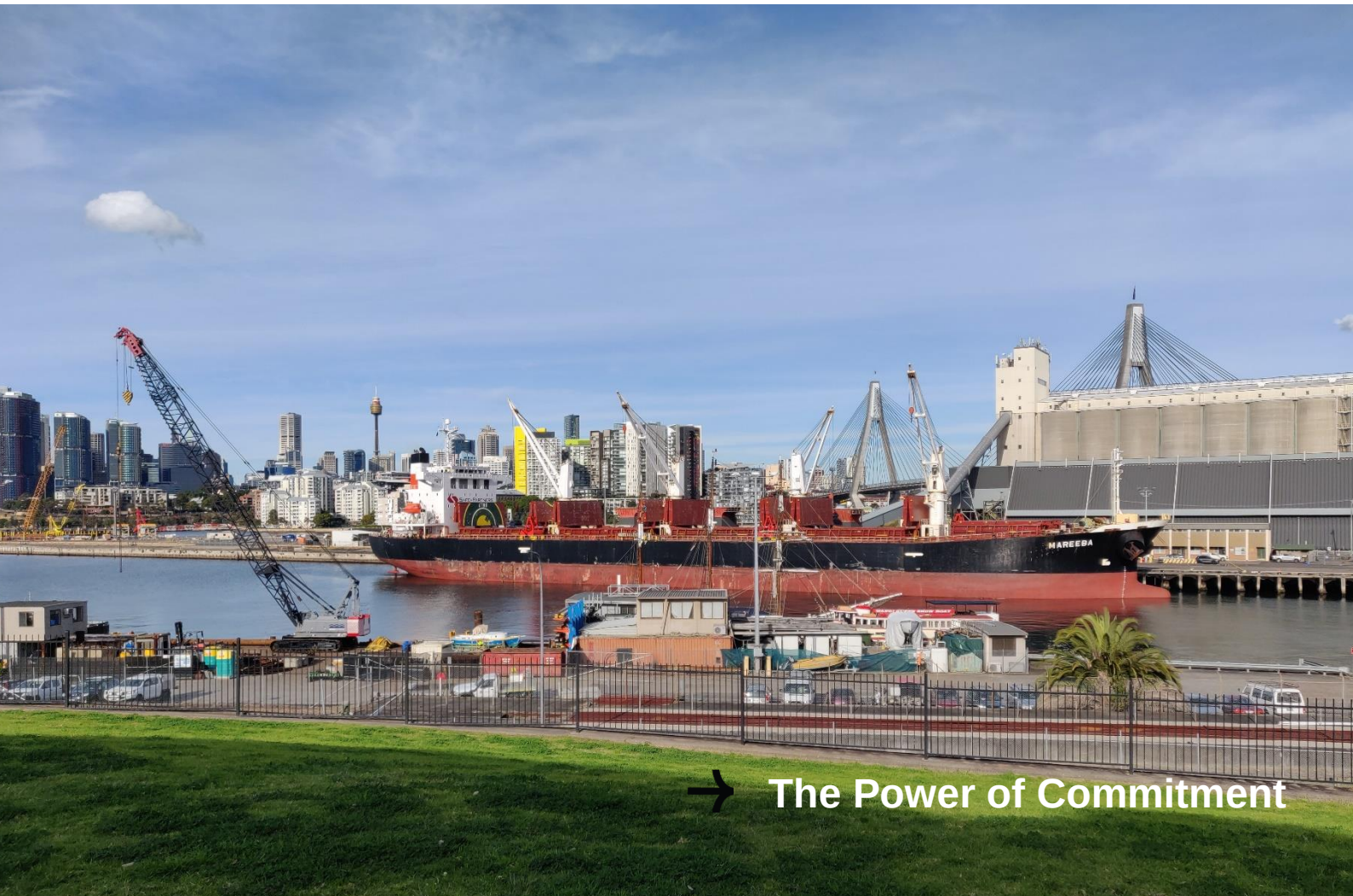
Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

September 2024



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
Client name	Port Authority of New South Wales
Document title	Monthly compliance noise monitoring report – September 2024
Revision version	Rev 2
Project number	12540862

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	C Gordon	C Doyle		E Milton		21/10/2024
S4	1	C Gordon	C Doyle		E Milton		29/10/2024
S4	2	C Gordon	C Doyle		E Milton		7/11/2024

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 2024, 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	14529646	**Initial calibration level 90.7 dBA** Min. deviation = 0.0 dB Max. deviation = 0.2 dB
		L02	Maintenance Building on White Bay		14529643	**Initial calibration level 91.9 dBA** Min. deviation = 0.3 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529645	**Initial calibration level 92.5 dBA** Min. deviation = 0.2 dB Max. deviation = 0.3 dB
		L04	Onsite at Glebe Island		14529640	**Initial calibration level 93.9 dBA** Min. deviation = -0.1 dB Max. deviation = 0 dB

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Bulk vessels				
Luga	September 6, 2024 / 01:28	September 7, 2024 / 11:00	GLB8	L03
Luga	September 16, 2024 / 17:57	September 20, 2024 / 14:40	GLB8	L03

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Pioneer	September 17, 2024 / 08:25	September 20, 2024 / 10:55	GLB7	L03
Wyuna	September 21, 2024 / 21:48	September 23, 2024 / 22:08	GLB8	L03
Pioneer	September 30, 2024 / 20:03	October 4, 2024 / 10:57	GLB7	L03
Cruise vessel				
Pacific Adventure	September 27, 2024 / 13:16	September 28, 2024 / 06:17	WBCT	L01

2.1 Cruise 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] $L_{Aeq(9\ hr)}$	Day[2] $L_{Aeq(15\ hr)}$	Night[3] $L_{Aeq(9\ hr)}$	Day[4]	Night
Pacific Adventure	Sep 27	L01	58	48	N/A	58	N/A	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) 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."

3. Compliance summary

3.1 Bulk, research 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 $L_{Aeq(15\ hr)}$	Night $L_{Aeq(1\ hr)}$	Night L_{Amax}	Day[2] $L_{Aeq(15\ hr)}$	Night $L_{Aeq(1\ hr)}$	Night L_{Amax}	Day	Night
Luga	Sep 6 – Sep 7	L03	54	53	67[4]	60	55	65	Yes	No[4]
Luga	Sep 16 – Sep 20	L03	54	52	67[5]	60	55	65	Yes	No[5]
Pioneer	Sep 17 – Sep 20	L03	53	53	63	60	55	65	Yes	Yes[6]
Wyuna	Sep 21 – Sep 23	L03	54	54	66[7]	60	55	65	Yes	No[7]
Pioneer	Sep 30 – Oct 4	L03	51	49	64	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) – loudest 1 hour period

Note: 4) This maximum level event only occurred once during the entire night time period of September 5 2024. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times during the night of September 5, 2024.

Note: 5) This maximum level event only occurred once during the entire night time period of September 16, 2024. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times during the night of September 16, 2024.

Note: 6) The online noise system determined a 1 dB exceedance of the maximum noise level criteria, on one occasion only on the night of September 17, 2024. Although the Luga and Pioneer were berthed simultaneously, due to the direction of the maximum noise level event, it is likely that this was associated with the Luga. Therefore this has been excluded from the Pioneer data.

Note: 7) This maximum level event only occurred once during the entire night time period of September 22, 2024. Given it only occurred once and only a 1 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times, during the night of September 22, 2024.

4. Detailed results – bulk and research salt vessels

4.1 Luga (GLB8) – September 6 – September 7, 2024

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 5, 2024[4]	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	-	-	-	60	-
	Night		$L_{Aeq,\ 1\ hour}$[1]	53	No	Yes	55	Yes
			L_{Amax}	67[5]	-	-	65	No[5]
September 6, 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
September 7, 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	Yes	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

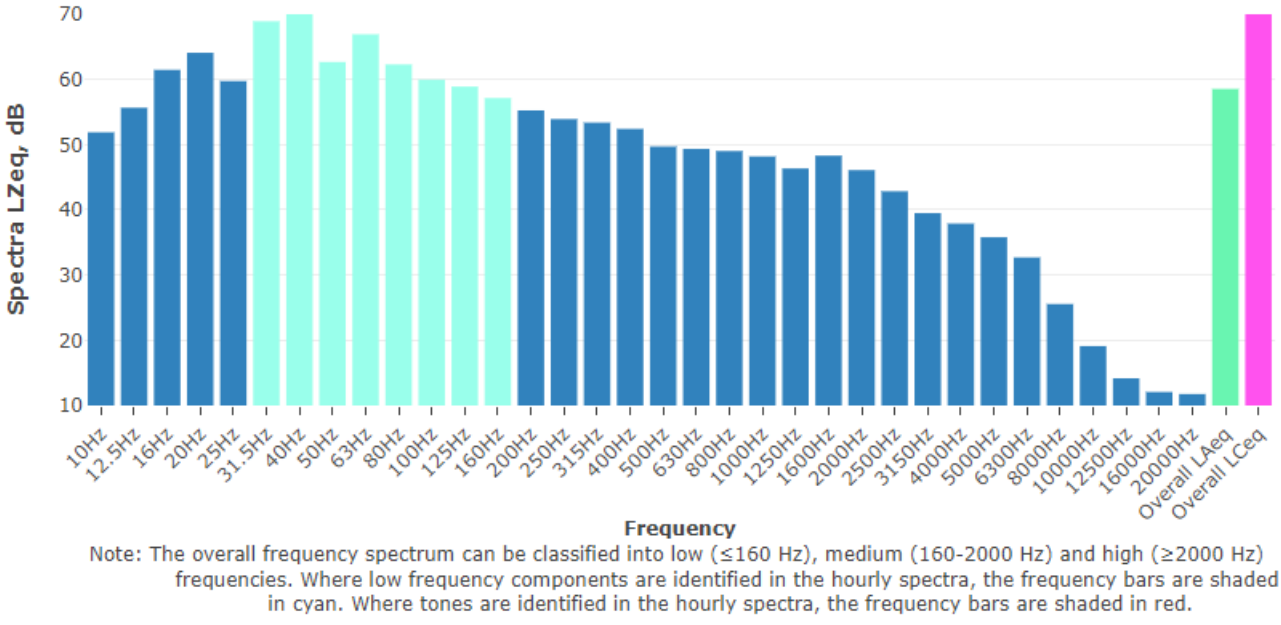
2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) Note that the system classifies September 5 as the period from 7 am on September 5 to 7 am on September 6. The Luga arrived at 1:28 am on September 6, and has been incorporated in the data for September 5.

5) This maximum level event only occurred once during the entire night time period on 5 September 2024. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times during the night of September 5, 2024.

4.1.2 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 4.1 Typical vessel spectrum – noise level at L03

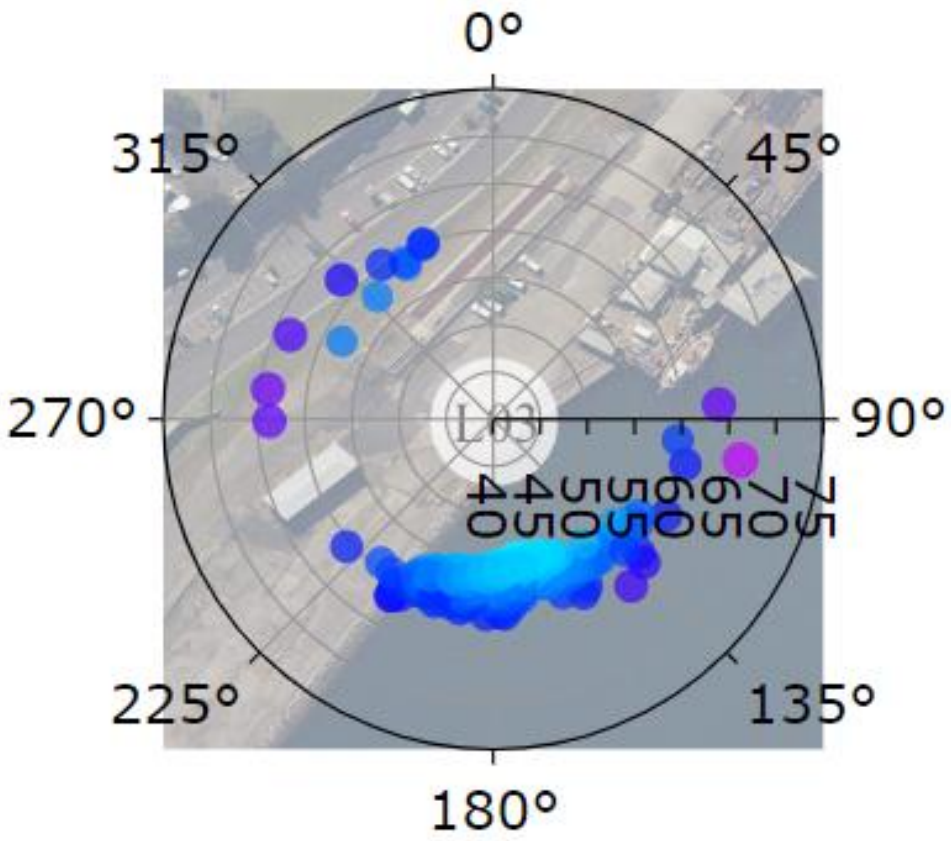


Figure 4.2 Typical vessel polar (directional) plot

4.2 Luga (GLB8) – September 16 – September 20, 2024

4.3 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 16 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	52	No	Yes	55	Yes
			L_{Amax}	67[4]	-	-	65	No[4]
September 17 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	Luga and Pioneer were berthed simultaneously at Glebe Island 7 and 8. Noise levels determined by the online noise system were assigned to the Luga during this period, as this was the dominant noise source at the time. Note that noise from both vessels was compliant with the daytime $L_{Aeq\ (15\ hour)}$ and the $L_{Aeq\ (1hour)}$ criteria, with the exception of the night period on September 17. A discussion regarding this non-exceedance is provided in Section 4.7.				
	Night		$L_{Aeq,\ 1\ hour}$[1]					
			L_{Amax}					
September 18 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]					
	Night		$L_{Aeq,\ 1\ hour}$[1]					
			L_{Amax}					
September 19 2024	Day	L03	$L_{Aeq,\ 15\ hour}$[1]					
	Night		$L_{Aeq,\ 1\ hour}$[1]					
			L_{Amax}					
September 20 2024	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

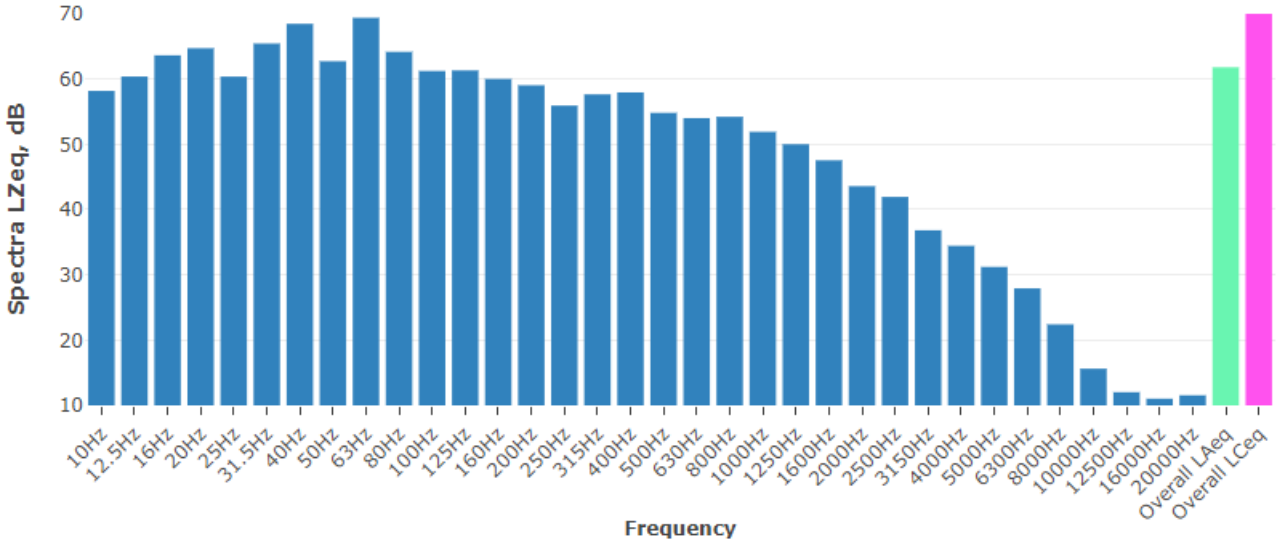
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) This maximum level event only occurred once during the entire night time period of September 16, 2024. Given it only occurred once and only a 2 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times during the night of September 16, 2024.

4.3.1 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

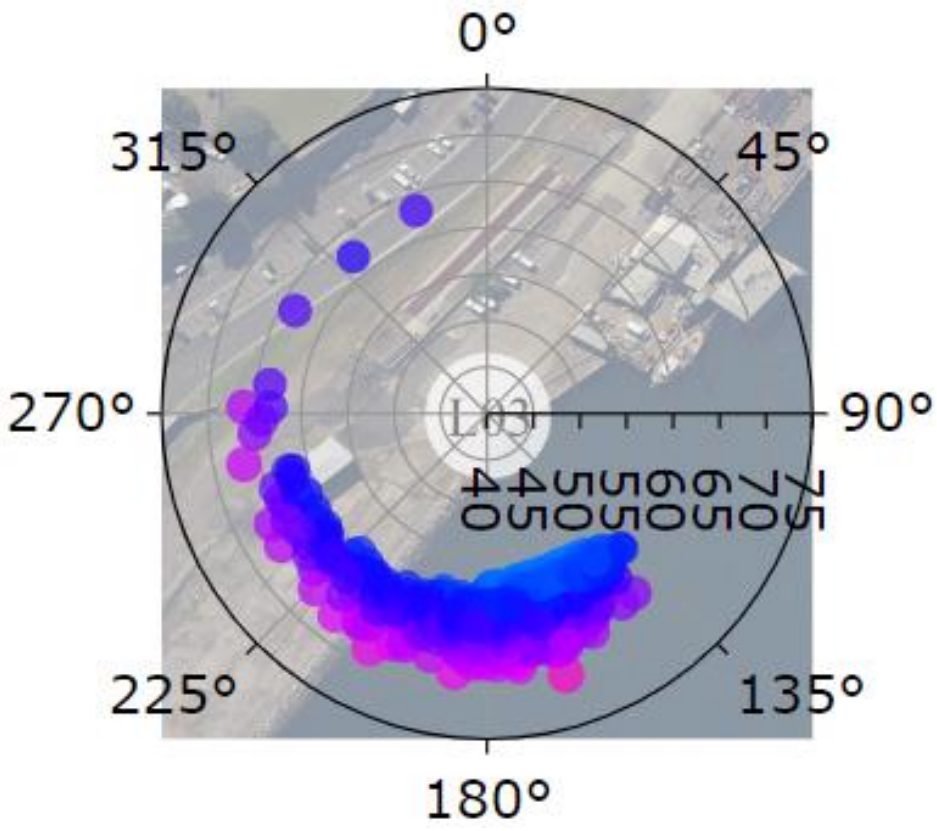


Figure 4.4 Typical vessel polar (directional) plot

4.4 Pioneer (GLB7) – September 17 – September 20, 2024

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 17, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	Luga and Pioneer were berthed simultaneously at Glebe Island 7 and 8. Noise levels determined by the online noise system were assigned to the Luga during this period, as this was the dominant noise source at the time. Note that noise from both vessels was compliant with the daytime $L_{Aeq\ (15\ hour)}$ and the $L_{Aeq\ (1hour)}$ criteria, with the exception of the night period on September 17. A discussion regarding this non-exceedance is provided in Section 4.7.				
	Night		$L_{Aeq, 1\ hour}$[1]					
			L_{Amax}					
September 18, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]					
	Night		$L_{Aeq, 1\ hour}$[1]					
			L_{Amax}					
September 19, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]					
	Night		$L_{Aeq, 1\ hour}$[1]					
			L_{Amax}					
September 20, 2024	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

4.5 Wyuna (GLB8) – September 21– September 23, 2024

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
September 21, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	50	-	-	60	-
	Night		$L_{Aeq, 1\ hour}$[1]	54	No	No	55	Yes
			L_{Amax}	64	-	-	65	Yes
September 22, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	54	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	52	No	Yes	55	Yes
			L_{Amax}	66[4]	-	-	65	No[4]
September 23, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	53	No	Yes	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) This maximum level event only occurred once during the entire night time period of September 22, 2024. Given it only occurred once and only a 1 dB above the maximum noise trigger level, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times, during the night of September 22, 2024..

4.5.2 Additional information

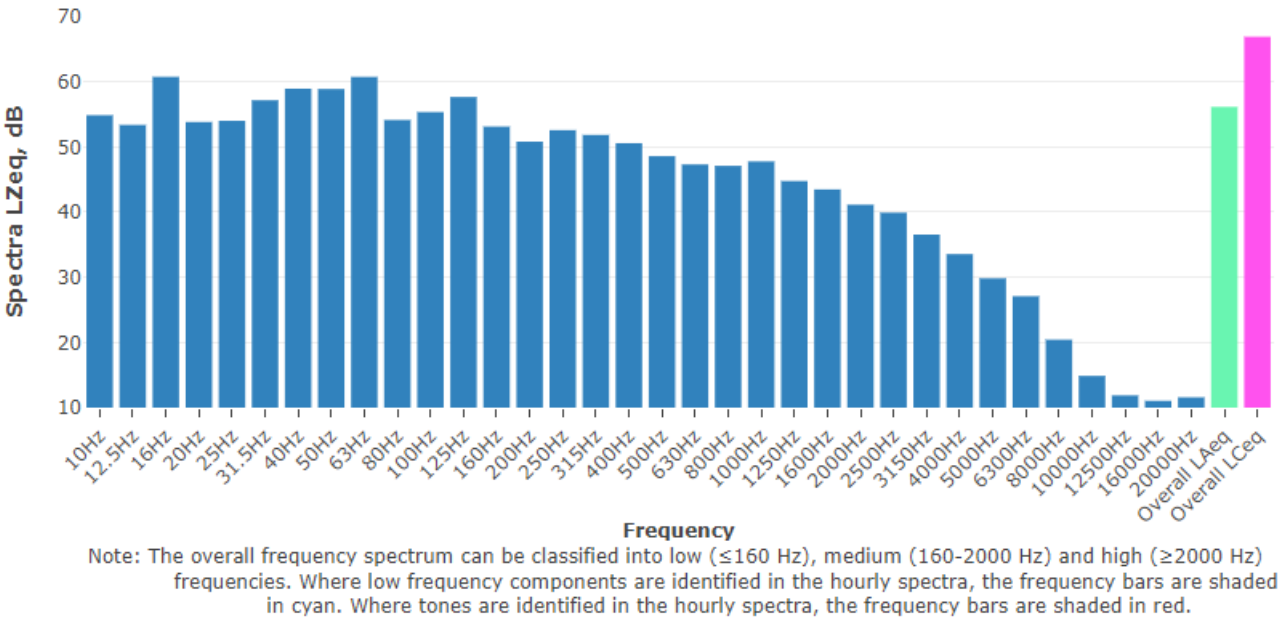


Figure 4.5 Typical vessel spectrum – noise level at L03

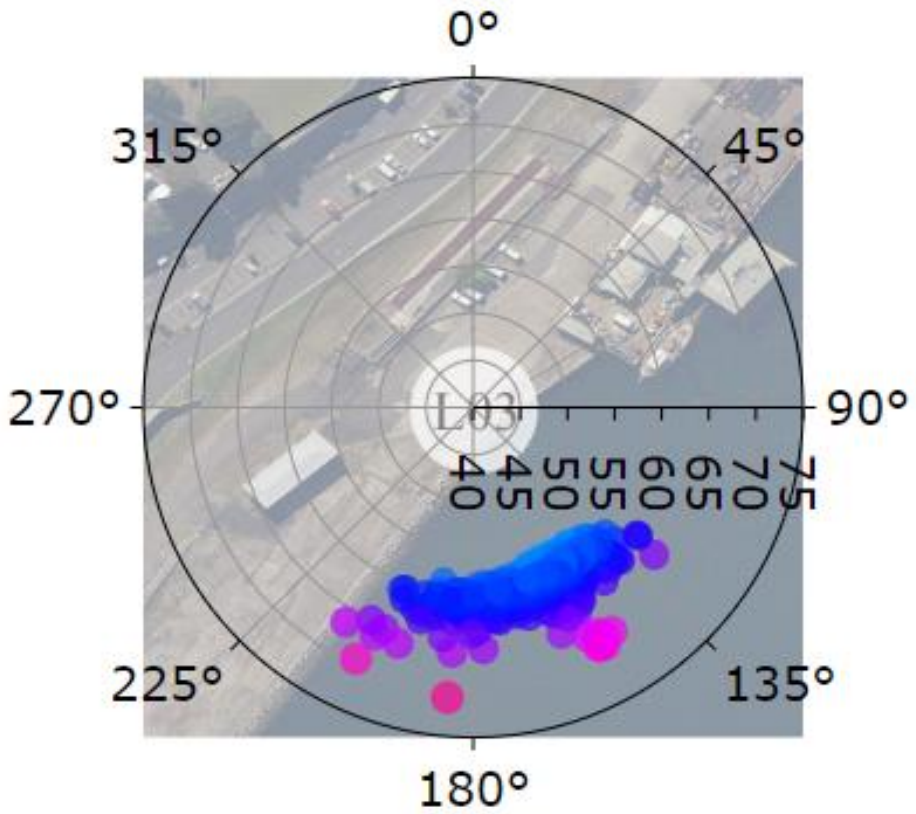


Figure 4.6 Typical vessel polar (directional) plot

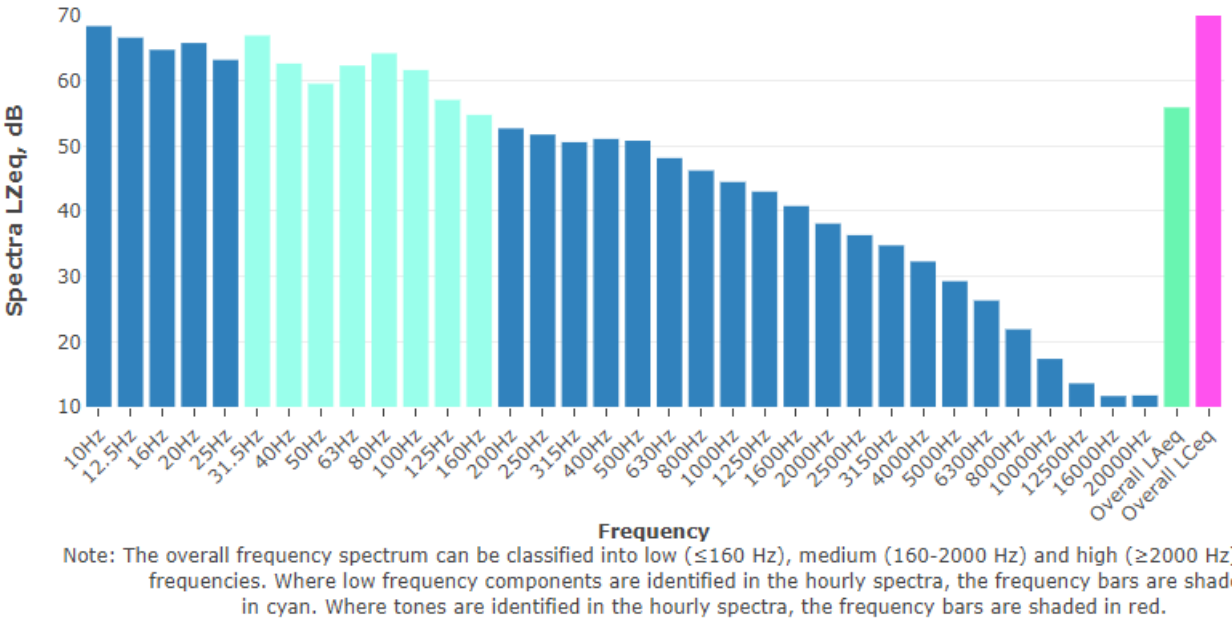
4.6 Pioneer (GLB7) – September 30 – October 4, 2024

4.6.1 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 30, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	49	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	62	-	-	65	Yes
October 1, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	48	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	47	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
October 2, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	50	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	47	No	Yes	55	Yes
			L_{Amax}	59	-	-	65	Yes
October 3, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	48	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	48	No	Yes	55	Yes
			L_{Amax}	55	-	-	65	Yes
October 4, 2024	Day	L03	$L_{Aeq, 15\ hour}$[1]	51	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

4.6.2 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 shade 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

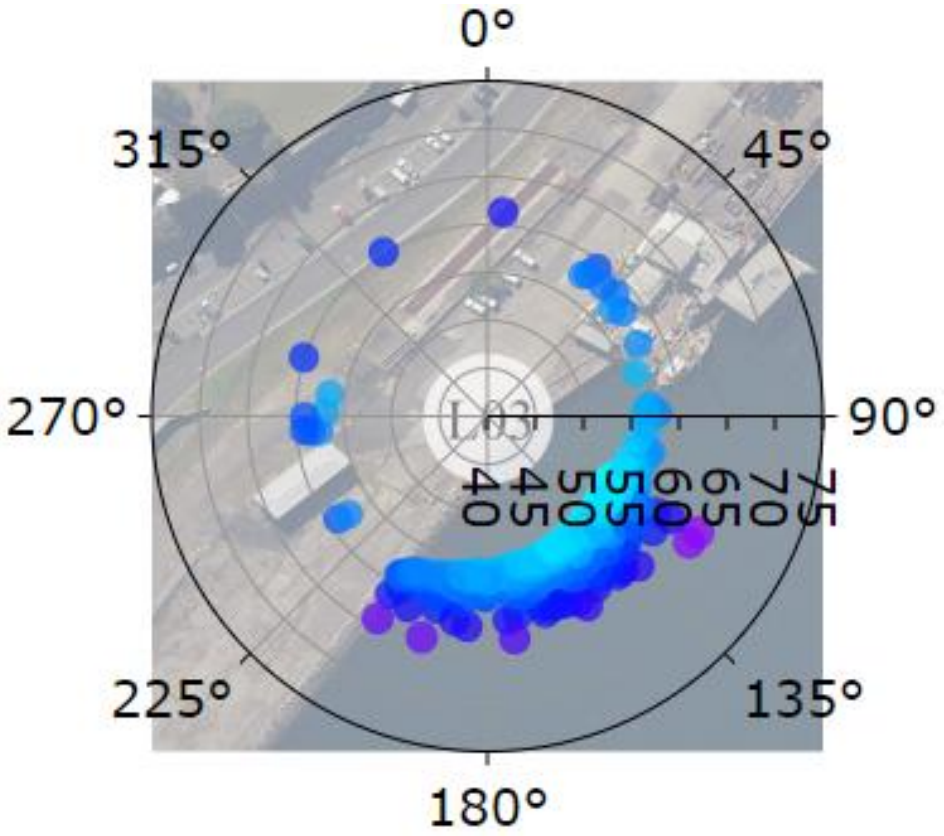


Figure 4.8 Typical vessel polar (directional) plot

4.7 Discussion regarding Luga and Pioneer

From September 17 to September 20, the Luga (GLB8) and the Pioneer (GLB7) were simultaneously at berth. During this period, the Luga had slightly higher noise levels, therefore the noise monitoring system attributed the measured noise levels to this vessel. The noise monitoring system indicated that there was a potential exceedance of the Vessel Noise Trigger Levels during one night-time period, 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 Luga and Pioneer contributions has been estimated based on the following:

- Analysis of the measured noise levels from historical visits of the Pioneer only
- Analysis of the measured noise levels from historical visits of the Luga only, including the day prior to the arrival of the Pioneer
- Analysis of the measured noise levels from September 17 and September 20 when both the Luga and Pioneer were berthed.

During the daytime and night-time period on September 17, noise levels were measured to be 55-56 dBA. As such, the estimated Luga and Pioneer contribution is as follows:

Assessment period	Estimated contribution, dBA	
	Luga	Pioneer
Day	54	53
Night	52	53

For the following days, the noise level was reduced to 53/54 dBA during the day and 52 dBA during the night. As such, the noise level from the Pioneer in this period is calculated to be less than 50 dBA.

The online noise system determined a 1 dB exceedance of the maximum noise level criteria, on one occasion only on the night of September 17, 2024. Although the Luga and Pioneer were berthed simultaneously, due to the direction of the maximum noise level event, it is likely that this was associated with the Luga, however this can’t be confirmed.

ghd.com

The Power of Commitment