



# Monthly compliance noise monitoring report

**Glebe Island / White Bay**

Port Authority of New South Wales

February 2023



→ The Power of Commitment

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<b>Document title</b>	Monthly compliance noise monitoring report – February 2023
<b>Revision version</b>	Rev 0
<b>Project number</b>	12540862

**Document status**

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	C Gordon	V Lau		E Milton		04/04/2023
S4	1	C Gordon	V Lau		E Milton		27/04/2023

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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 February 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	<b>Meter details</b> Norsonic Nor145 Sound Level Meter with Nor1297 Noise Compass  <b>Meter settings</b> A-weighted Fast time response 15 minute intervals	14529640	<b>Initial calibration level 92.6 dBA</b> Min. deviation = 0.0 dB Max. deviation = 0.3 dB
		L02	Maintenance Building on White Bay		14529642	<b>Initial calibration level 91.5 dBA</b> Min. deviation = 0.2 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529643	<b>Initial calibration level 91.7 dBA</b> Min. deviation = 0.1 dB Max. deviation = 0.3 dB
		L04	Onsite at Glebe Island		14529644	<b>Initial calibration level 92.3 dBA</b> Min. deviation = -0.1 dB Max. deviation = -0.1 dB
Vessel name	Arrival date and time	Departure date and time		Berth location	Applicable noise monitoring location/s	
<b>Bulk vessels</b>						
Atlantic Dawn	February 4, 2023 / 22:08	February 6, 2023 / 18:57		GLB1	Attended monitoring	
Akuna	February 6, 2023 / 13:58	February 8, 2023 / 00:04		GLB8	L03	
Luga	February 14, 2023 / 12:59	February 16, 2023 / 20:33		GLB8	L03	

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Pioneer	February 19, 2023 / 21:42	February 23, 2023 / 14:09	GLB7	L03
Kanda Logger	February 27, 2023 / 05:21	March 3, 2023 / 00:44	GLB7	L03
<b>Cruise vessels</b>				
Viking Orion	February 1, 2023 / 11:49	February 3, 2023 / 18:05	WBCT	L01
Silver Muse	February 2, 2023 / 12:59	February 3, 2023 / 22:54	WHT4	L02
Azamara Quest	February 6, 2023 / 06:10	February 6, 2023 / 17:20	WBCT	L01
Europa 2	February 6, 2023 / 07:53	February 8, 2023 / 18:59	WHT4	L02
Seabourn Odyssey	February 7, 2023 / 06:47	February 7, 2023 / 19:15	WBCT	L01
Norwegian Spirit	February 8, 2023 / 05:32	February 8, 2023 / 17:59	WBCT	L01
Amera	February 9, 2023 / 04:02	February 10, 2023 / 17:25	WHT4	L02
Zuiderdam	February 9, 2023 / 06:34	February 10, 2023 / 18:06	WBCT	L01
Noordam	February 11, 2023 / 07:18	February 11, 2023 / 18:21	WBCT	L01
Regatta	February 13, 2023 / 06:18	February 13, 2023 / 17:07	WBCT	L01
Viking Neptune	February 16, 2023 / 07:22	February 17, 2023 / 17:59	WHT4	L02
Pacific Adventure	February 16, 2023 / 09:16	February 16, 2023 / 18:34	WBCT	L01
Pacific Adventure	February 20, 2023 / 06:48	February 20, 2023 / 16:18	WBCT	L01
Viking Mars	February 20, 2023 / 12:55	February 20, 2023 / 19:32	WHT4	L02
Viking Mars	February 20, 2023 / 19:32	February 22, 2023 / 18:33	WBCT	L01
Silver Whisper	February 24, 2023 / 07:18	February 24, 2023 / 19:00	WBCT	L01
Regatta	February 28, 2023 / 09:44	February 28, 2023 / 18:50	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 <sup>1</sup>	
			Day <sup>2</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>3</sup> L <sub>Aeq</sub> (1 hr)	Night <sup>3</sup> L <sub>Amax</sub>	Day <sup>2</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>3</sup> L <sub>Aeq</sub> (1 hr)	Night <sup>3</sup> L <sub>Amax</sub>	Day	Night
Atlantic Dawn <sup>4</sup>	Feb 4 – Feb 6	Attended – M09	52	51	-	60	55	65	Yes	Yes
		Attended – M10	53	50	-	60	55	65	Yes	Yes
Akuna	Feb 6 – Feb 8	L03	55	51	65	60	55	65	Yes	Yes
Luga	Feb 14 – Feb 16	L03	56	55	69	60	55	65	Yes	No
Pioneer	Feb 19 – Feb 23	L03	54	54	63	60	55	65	Yes	Yes
Kanda Logger	Feb 27 – Mar 3	L03	55	55	65	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) Refer to Compliance Noise Monitoring Report dated 9 February 2023

## 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 <sup>1</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>2</sup> L <sub>Aeq</sub> (9 hr)	Day <sup>4</sup> L <sub>Aeq</sub> (15 hr)	Night <sup>2</sup> L <sub>Aeq</sub> (9 hr)	Day <sup>4</sup>	Night
Viking Orion	Feb 1	L01	50	48	N/A	58	N/A	Yes
	Feb 2	L01	54	48	N/A	58	N/A	Yes
	Feb 3	L01	54	-	N/A	58	N/A	-
Silver Muse	Feb 2	L02	56	51	N/A	58	N/A	Yes
	Feb 3	L02	54	-	N/A	58	N/A	-
Azamara Quest	Feb 6	L01	55	49	N/A	58	N/A	Yes
Europa 2	Feb 6	L02	56	51	N/A	58	N/A	Yes
	Feb 7	L02	55	52	N/A	58	N/A	Yes
	Feb 8	L02	56	-	N/A	58	N/A	-
Seabourn Odyssey	Feb 7	L01	54	-	N/A	58	N/A	-
Norwegian Spirit	Feb 8	L01	58	56	N/A	58	N/A	Yes
Amera	Feb 9	L02	56	53	N/A	58	N/A	Yes
	Feb 10	L02	55	-	N/A	58	N/A	-
Zuiderdam	Feb 9	L01	56	51	N/A	58	N/A	Yes
	Feb 10	L01	55	-	N/A	58	N/A	-
Noordam	Feb 11	L01	56	49	N/A	58	N/A	Yes
Regatta	Feb 13	L01	54	47	N/A	58	N/A	Yes
Viking Neptune	Feb 16	L02	53	47	N/A	58	N/A	Yes
	Feb 17	L02	55	-	N/A	58	N/A	-
Pacific Adventure	Feb 16	L01	59	-	N/A	58	N/A	-
Pacific Adventure	Feb 20	L01	59	-	N/A	58	N/A	-
Viking Mars	Feb 20	L02	57	-	N/A	58	N/A	-
Viking Mars	Feb 20	L01	50	48	N/A	58	N/A	Yes
	Feb 21	L01	55	56	N/A	58	N/A	Yes
	Feb 22	L01	55	-	N/A	58	N/A	-
Silver Whisper	Feb 24	L01	54	49	N/A	58	N/A	Yes
Regatta	Feb 28	L01	54	-	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 Akuna – February 6 – February 8, 2023 (GLB8)

#### 4.1.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
February 6, 2023	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	46	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	48	No	Yes	55	Yes
			L <sub>Amax</sub>	56	-	-	65	Yes
February 7, 2023	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	55	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	48	No	Yes	55	Yes
			L <sub>Amax</sub>	65	-	-	65	Yes
February 8, 2023	Day	L03	L <sub>Aeq</sub> , 15 hour <sup>1</sup>	54	No	Yes	60	Yes
	Night		L <sub>Aeq</sub> , 1 hour <sup>1</sup>	51	No	Yes	55	Yes
			L <sub>Amax</sub>	55	-	-	65	Yes

Notes

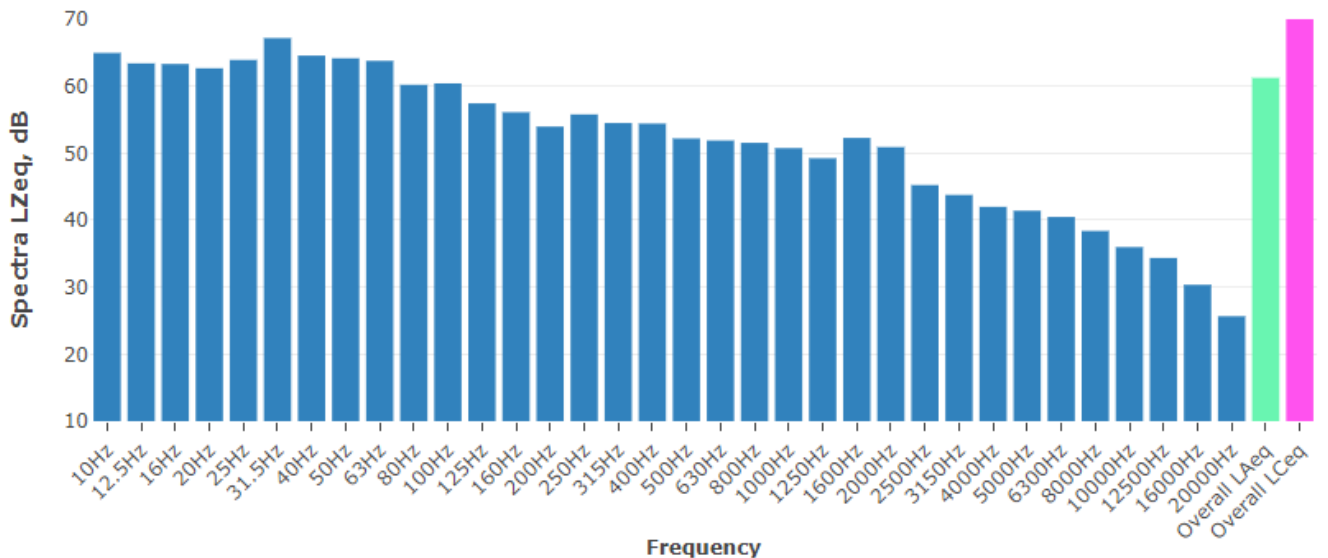
1) Daytime period (7 am to 10 pm) – 15 hours  
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise



## 4.1.2 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  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

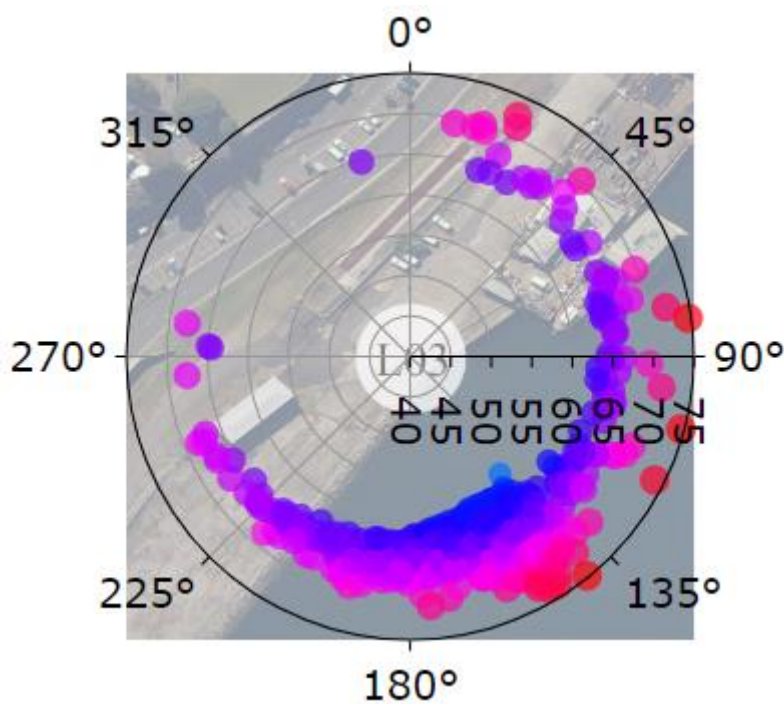


Figure 4.2 Typical vessel polar (directional) plot

## 4.2 Luga – February 14 – February 16, 2023 (GLB8)

### 4.2.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
February 14, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	56	No	Yes	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	55	No	Yes	55	Yes
			L <sub>Amax</sub>	69	-	-	65	No
February 15, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	55	No	Yes	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	54	No	Yes	55	Yes
			L <sub>Amax</sub>	58	-	-	65	Yes
February 16, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	55	No	Yes	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	-	-	-	55	-
			L <sub>Amax</sub>	-	-	-	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

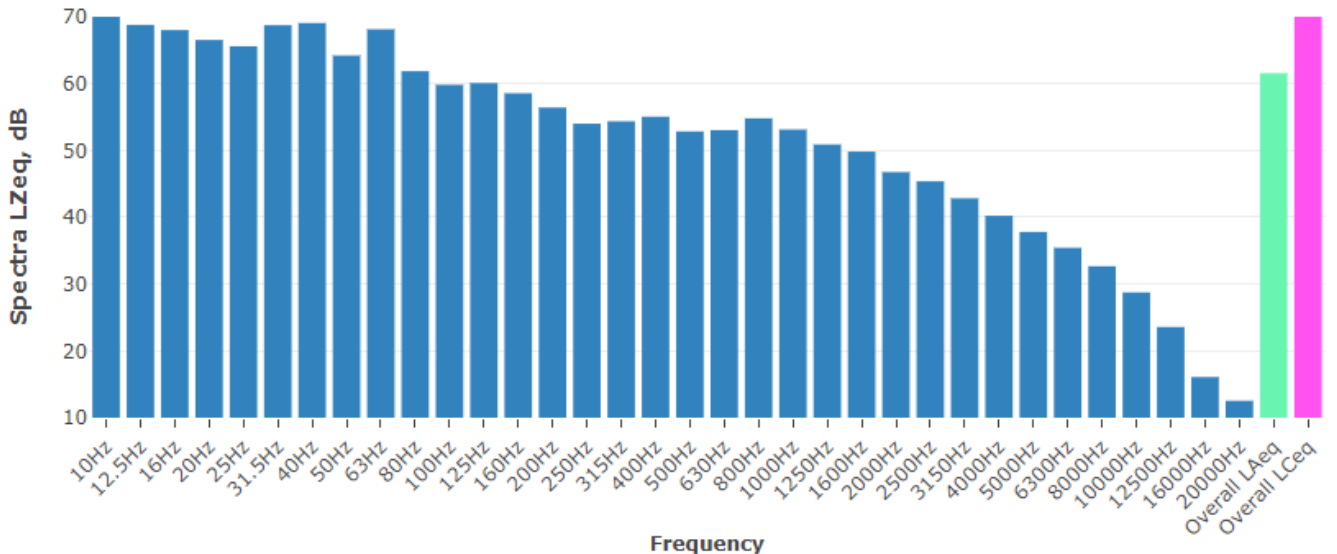
3) LFN = Low Frequency Noise

### 4.2.2 Discussion regarding exceedance of L<sub>Amax</sub> criteria

The noise monitoring system indicated that there were 19 exceedances of the L<sub>Amax</sub> criteria of 65 dBA during the night period on February 14, 2023. A detailed review was undertaken of the recording files during this period to determine whether these maximum noise level events were associated with the Luga while at berth at Glebe Island 8.

This review indicated that the source of noise was a pressure release which is likely to be associated with the Luga. Given the number of exceedances occurring during this period, it is recommended that a discussion is held with the vessel operator to establish the reason for these events. There were no exceedances of the L<sub>Amax</sub> criteria on other nights, which indicates that this noise source is not always present and can potentially be avoided.

### 4.2.3 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  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

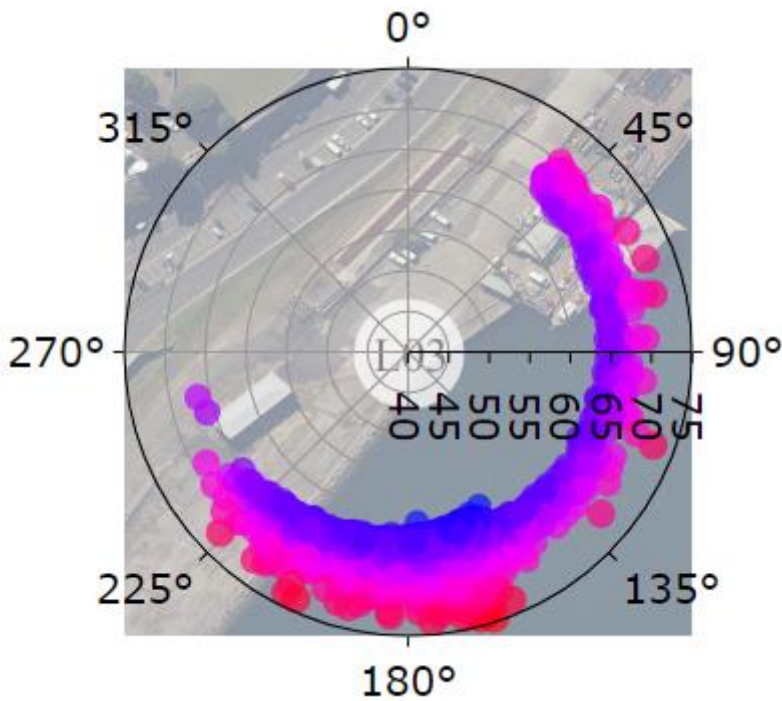


Figure 4.4 Typical vessel polar (directional) plot

## 4.3 Pioneer – February 19 – February 23, 2023 (GLB7)

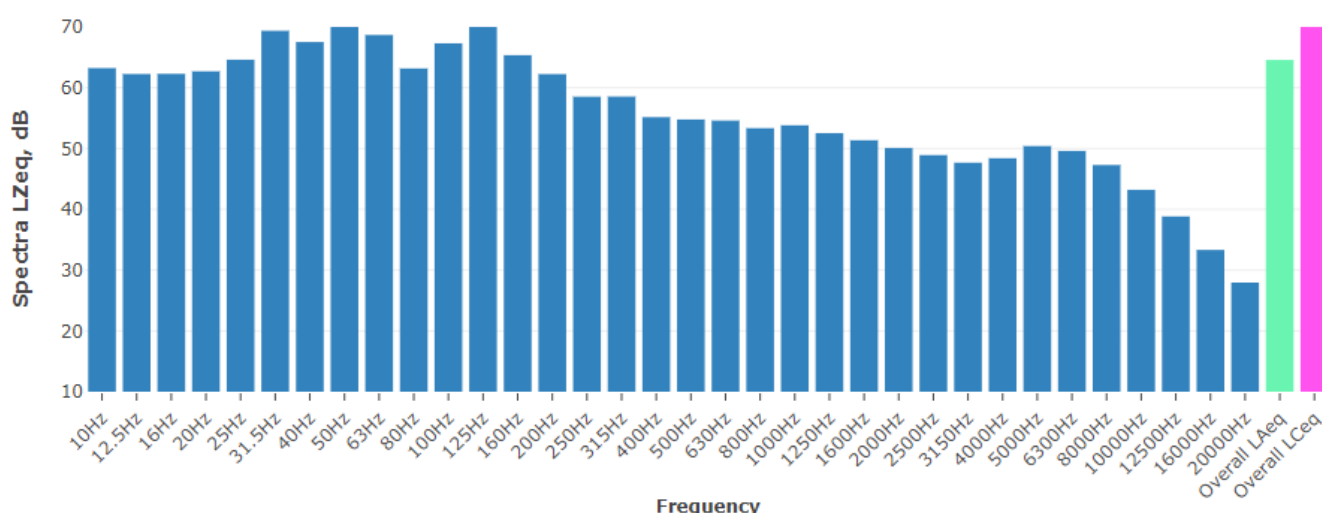
### 4.3.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
February 19, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	52	No	Yes	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	52	No	Yes	55	Yes
			L <sub>Amax</sub>	58	-	-	65	Yes
February 20, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	53	No	No	55	Yes
			L <sub>Amax</sub>	59	-	-	65	Yes
February 21, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	53	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	54	No	No	55	Yes
			L <sub>Amax</sub>	63	-	-	65	Yes
February 22, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	54	No	No	55	Yes
			L <sub>Amax</sub>	60	-	-	65	Yes
February 23, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	-	-	-	55	-
			L <sub>Amax</sub>	-	-	-	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) See discussion below regarding tonal noise

### 4.3.2 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  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

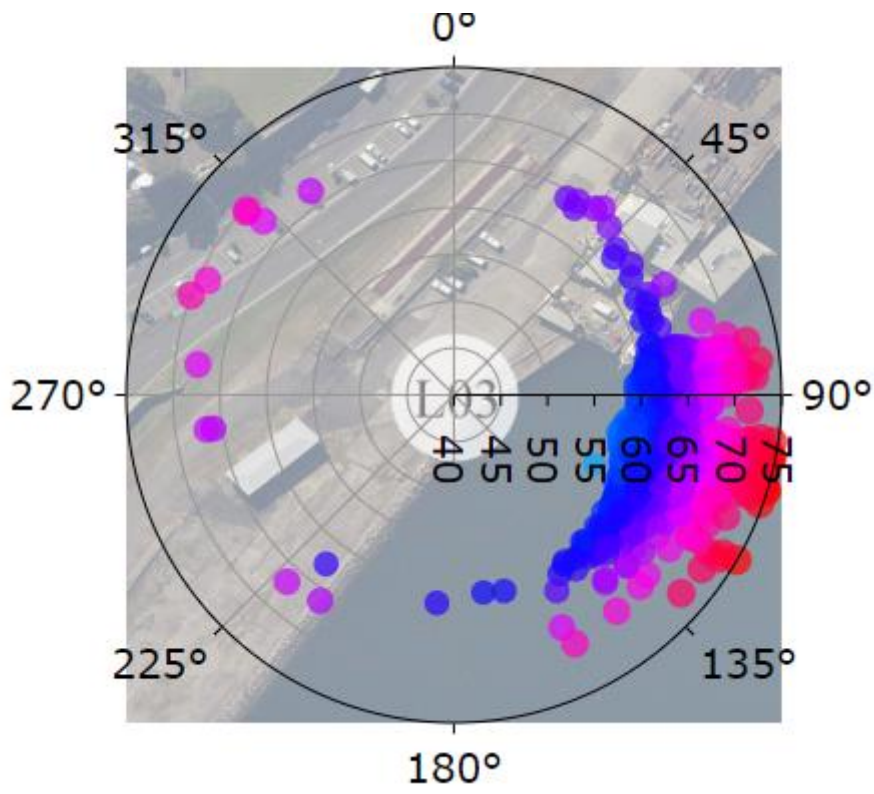


Figure 4.6 Typical vessel polar (directional) plot

## 4.4 Kanda Logger – February 28 – March 3, 2023 (GLB7)

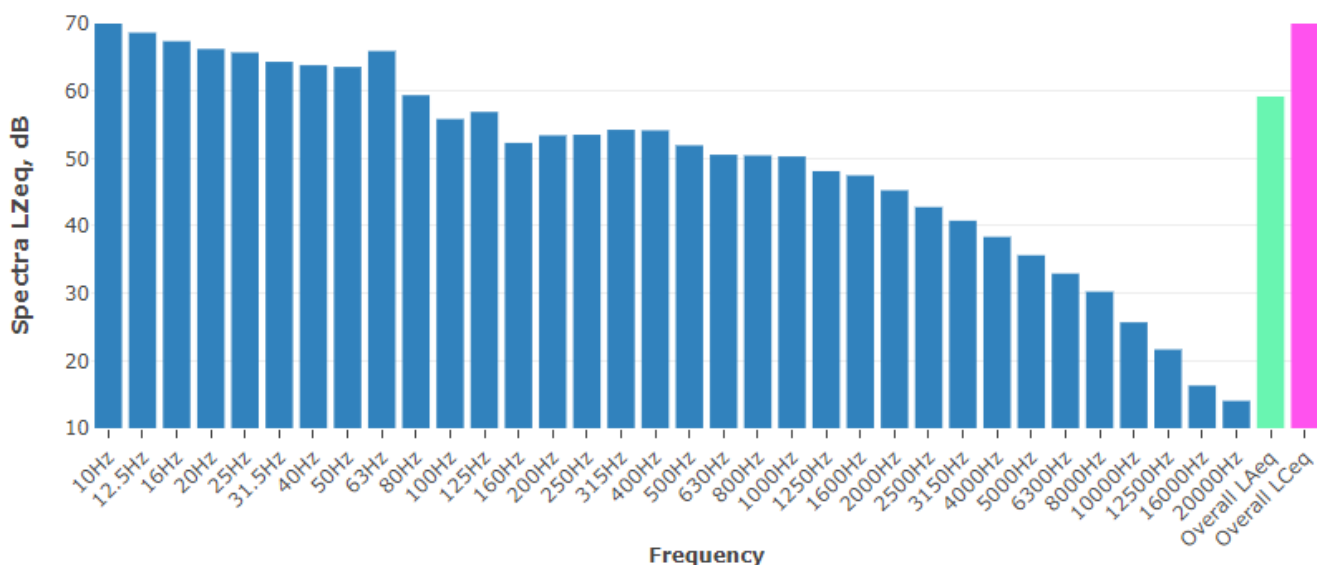
### 4.4.1 Daily noise monitoring results

Date	Time period <sup>1</sup>	Monitor location	Noise descriptor	Vessel noise level dBA <sup>2</sup>	Tonal	LFN <sup>3</sup>	Vessel Noise Trigger Levels, dBA	Compliance
February 27, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	Yes	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	54	No	Yes	55	Yes
			L <sub>Amax</sub>	59	-	-	65	Yes
February 28, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	52	No	No	55	Yes
			L <sub>Amax</sub>	65	-	-	65	Yes
March 1, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	55	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	55	No	No	55	Yes
			L <sub>Amax</sub>	62	-	-	65	Yes
March 2, 2023	Day	L03	L <sub>Aeq, 15 hour</sub> <sup>1</sup>	54	No	No	60	Yes
	Night		L <sub>Aeq, 1 hour</sub> <sup>1</sup>	55	No	No	55	Yes
			L <sub>Amax</sub>	65	-	-	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) See discussion below regarding tonal noise

### 4.4.2 Additional information



Note: The overall frequency spectrum can be classified into low ( $\leq 160$  Hz), medium (160-2000 Hz) and high ( $\geq 2000$  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

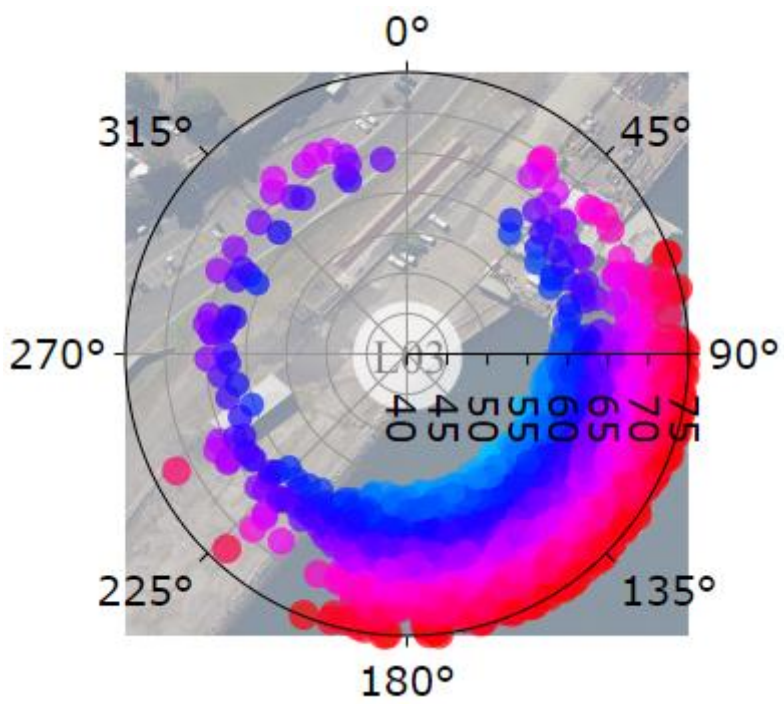


Figure 4.8 Typical vessel polar (directional) plot



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