



Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

January 2024



→ 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 January 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	14529646	Initial calibration level 90.6 dBA Min. deviation = 0.0 dB Max. deviation = 0.1 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	Meter settings A-weighted Fast time response 15 minute intervals	14529645	Initial calibration level 92.5 dBA Min. deviation = 0.0 dB Max. deviation = 0.1 dB
		L04	Onsite at Glebe Island		14529640	Initial calibration level 93.9 dBA 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	
Bulk vessels						
Mareeba	January 10, 2024 / 17:10	January 11, 2024 / 20:01		GLB7	L03	
Kondili	January 15, 2024 / 9:44	January 17, 2024 / 11:53		GLB8	L03	

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Bulk vessels				
Pioneer	January 15, 2024 / 10:27	January 19, 2024 / 14:05 ¹	GLB7	L03
CSL Reliance	January 20, 2024 / 00:10	January 22, 2024 / 16:23	GLB7	L03
Kondili	January 25, 2024 / 13:00	January 27, 2024 / 21:34	GLB8	L03
Cruise vessels				
AIDA Sol	December 31, 2023 / 06:14	January 1, 2024 / 18:58	WBCT	L01
Azamara Journey	December 31, 2023 / 07:48	January 01, 2024 / 23:58	WHT4	L02
Viking Orion	January 02, 2024 / 02:14	January 03, 2024 / 18:00	WHT4	L02
Noordam	January 02, 2024 / 07:00	January 02, 2024 / 18:35	WBCT	L01
Disney Wonder	January 03, 2024 / 06:00	January 03, 2024 / 17:15	WBCT	L01
Crystal Symphony	January 04, 2024 / 07:40	January 04, 2024 / 19:03	WBCT	L01
Disney Wonder	January 05, 2024 / 06:50	January 05, 2024 / 18:00	WBCT	L01
Azamara Journey	January 07, 2024 / 00:30	January 08, 2024 / 13:00	WBCT	L01
Seabourn Odyssey	January 07, 2024 / 07:27	January 07, 2024 / 19:01	WHT4	L02
Pacific Adventure	January 09, 2024 / 05:01	January 09, 2024 / 16:14	WBCT	L01
Seven Seas Navigator	January 10, 2024 / 06:44	January 10, 2024 / 18:14	WBCT	L01
Europa	January 10, 2024 / 09:37	January 12, 2024 / 16:00	WHT4	L02
Disney Wonder	January 12, 2024 / 06:55	January 12, 2024 / 17:28	WBCT	L01
Silver Whisper	January 13, 2024 / 06:59	January 13, 2024 / 19:35	WHT4	L02
Noordam	January 13, 2024 / 07:27	January 13, 2024 / 18:48	WBCT	L01
Silver Whisper	January 13, 2024 / 19:35	January 14, 2024 / 13:52	WBCT	L01
Norwegian Spirit	January 16, 2024 / 06:00	January 16, 2024 / 18:02	WBCT	L01
Silver Muse	January 17, 2024 / 16:45	January 18, 2024 / 21:17	WBCT	L01
Seven Seas Explorer	January 19, 2024 / 05:55	January 19, 2024 / 18:04	WHT4	L02

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Cruise vessels				
Pacific Adventure	January 19, 2024 / 07:19	January 19, 2024 / 16:02	WBCT	L01
Disney Wonder	January 20, 2024 / 02:06	January 20, 2024 / 17:23	WBCT	L01
Crystal Symphony	January 20, 2024 / 19:16	January 21, 2024 / 18:09	WBCT	L01
Disney Wonder	January 23, 2024 / 05:27	January 23, 2024 / 18:00	WBCT	L01
Pacific Adventure	January 24, 2024 / 06:46	January 24, 2024 / 16:56	WBCT	L01
Regatta	January 25, 2024 / 06:48	January 25, 2024 / 16:58	WBCT	L01
Pacific Adventure	January 27, 2024 / 06:43	January 27, 2024 / 16:04	WBCT	L01
Vasco da Gama	January 28, 2024 / 09:27	January 28, 2024 / 22:58	WBCT	L01
Viking Orion	January 29, 2024 / 07:32	January 31, 2024 / 17:27	WBCT	L01

Note: 1) The Pioneer relocated to White Bay 4 from 11:00 to 14:00 on 17 January 2024 during the departure of the Kondili. The Pioneer returned to Glebe Island 7 following this.

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
Mareeba	Jan 10 – Jan 11	L03	51	49	62	60	55	65	Yes	Yes
Kondili	Jan 15 – Jan 17	L03	56 ⁴	54 ⁴	64 ⁴	60	55	65	Yes	Yes ⁴
Pioneer	Jan 15 – Jan 17	L03				60	55	65	Yes	Yes ⁴
Pioneer (GBL7)	Jan 17- Jan 19	L03	48	48	69	60	55	65	Yes	Yes ⁵
CSL Reliance	Jan 20 – Jan 22	L03	53	52	64	60	55	65	Yes	Yes
Kondili	Jan 25 – Jan 27	L03	55	53	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) – loudest 1 hour period

Note: 4) The Kondili and Pioneer were berthed in Glebe Island 8 and Glebe Island 7 simultaneously, therefore individual noise levels could not be obtained. Noise levels were assigned to the Kondili during this visit, however the measured noise level is the cumulative level from both vessels. As all noise levels were compliant during these visits, a detailed noise assessment has not been undertaken

Note: 5) This maximum level event only occurred once during the night-time hours and occurred just prior to 7 am on the 19 January. Given the time that this occurred, and given it only occurred once, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level 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
AIDAsoi	Dec 31 – Jan 1	L01	52 ⁵	50 ⁵	N/A	58	N/A	Yes
Azamara Journey	Dec 31 – Jan 01	L02	57	58	N/A	58	N/A	Yes
Viking Orion	Jan 2 – Jan 3	L02	N/A ⁶	48	N/A	58	N/A	Yes
Noordam	Jan 2	L01	57	53	N/A	58	N/A	Yes
Disney Wonder	Jan 3	L01	56	51	N/A	58	N/A	Yes
Crystal Symphony	Jan 4	L01	59	-	N/A	58	N/A	-
Disney Wonder	Jan 5	L01	60 ⁷		N/A	58	N/A	-
Azamara Journey	Jan 7 – Jan 8	L01	55	52	N/A	58	N/A	Yes
Seabourn Odyssey	Jan 7	L02	N/A ⁶	49	N/A	58	N/A	Yes
Pacific Adventure	Jan 9	L01	58	-	N/A	58	N/A	-
Seven Seas Navigator	Jan 10	L01	58	-	N/A	58	N/A	-
Europa	Jan 10 – Jan 12	L02	57	49	N/A	58	N/A	Yes
Disney Wonder	Jan 12	L01	56	51	N/A	58	N/A	Yes
Silver Whisper	Jan 13	L02	57	-. ⁸	N/A	58	N/A	Yes
Noordam	Jan 13	L01	57	-	N/A	58	N/A	-
Silver Whisper	Jan 13- Jan 14	L01	55	53	N/A	58	N/A	Yes
Norwegian Spirit	Jan 16	L01	57	56	N/A	58	N/A	Yes
Silver Muse	Jan 17 – Jan 18	L01	53	49	N/A	58	N/A	Yes
Seven Seas Explorer	Jan 19	L02	57 ⁹	52	N/A	58	N/A	Yes
Pacific Adventure	Jan 19	L01	58	-	N/A	58	N/A	-
Disney Wonder	Jan 20	L01	57	-	N/A	58	N/A	-
Crystal Symphony	Jan 20 – Jan 21	L01	58	58	N/A	58	N/A	Yes

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
Disney Wonder	Jan 23	L01	57	54	N/A	58	N/A	Yes
Pacific Adventure	Jan 24	L01	57	-	N/A	58	N/A	-
Regatta	Jan 25	L01	53	51	N/A	58	N/A	Yes
Pacific Adventure	Jan 27	L01	57	-	N/A	58	N/A	-
Vasco da Gama	Jan 28	L01	54	55	N/A	58	N/A	Yes
Viking Orion	Jan 29 – Jan 31	L01	55	51	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."

Note: 5) The measured levels of the AIDA Sol were influenced by extraneous noise from the New Years Eve fireworks (both 9 pm and midnight) display in Sydney. As this is not associated with the cruise vessel, this data was excluded from the results.

Note: 6) Daytime measured values of the Viking Orion and Seabourn Odyssey were significantly impacted by adverse weather during this visit. It was not possible to determine a daytime noise level for this visit due to this.

Note: 7) During this visit of the Disney Wonder, tonality was observed by the noise monitoring system for 1 hour. As the policy does not require a correction for tonality for cruise vessels, this correction has been removed. The overall daytime noise level is influenced by higher levels between 18:00 and 19:00 during departure. It is likely associated with the horn use during departure.

Note: 8) The Silver Whisper relocated from White Bay 4 to the White Bay Cruise Terminal at 19:35 on January 13. These results are reflected in the entry 2 rows below for January 13-14 (measurement location L01).

Note: 9) Daytime measured values of the Seven Seas Explorer were impacted by adverse weather during this visit. This data has been removed from the over daytime Vessel Noise Level

4. Detailed results – bulk vessels

4.1 Mareeba (GLB7) – January 10 – January 11, 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
January 10, 2024	Day	L03	L _{Aeq, 15 hour} ¹	49	No	Yes	60	Yes
	Night		L _{Aeq, 1 hour} ¹	49	Yes	No	55	Yes
			L _{Amax}	62	-	-	65	Yes
January 11, 2024	Day	L03	L _{Aeq, 15 hour} ¹	51	No	Yes	60	Yes
	Night		L _{Aeq, 1 hour} ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

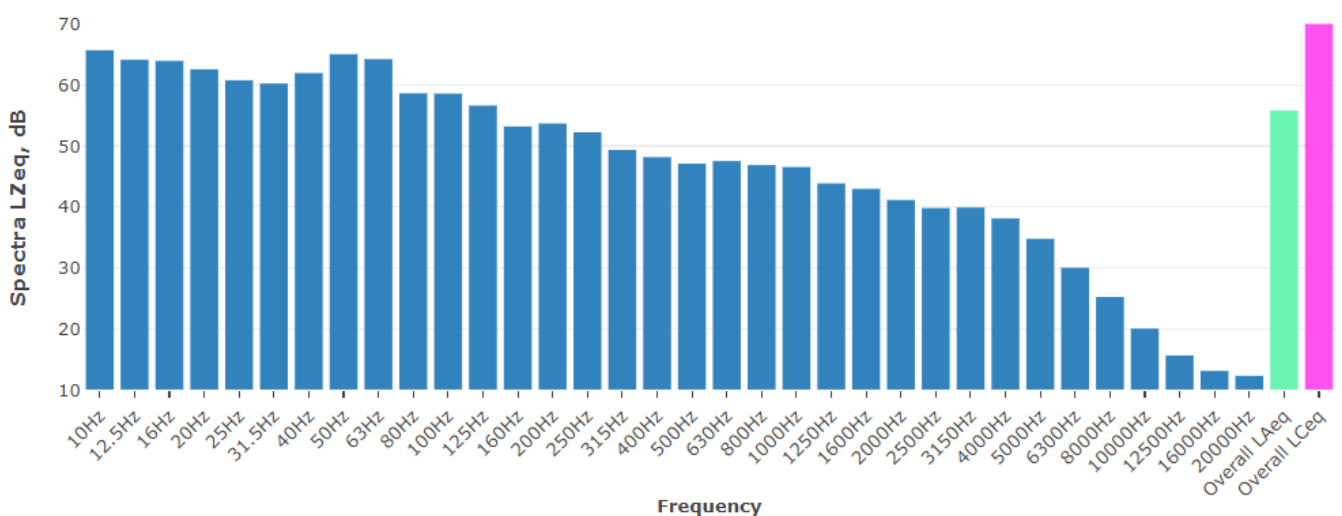
Notes

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

4.1.2 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

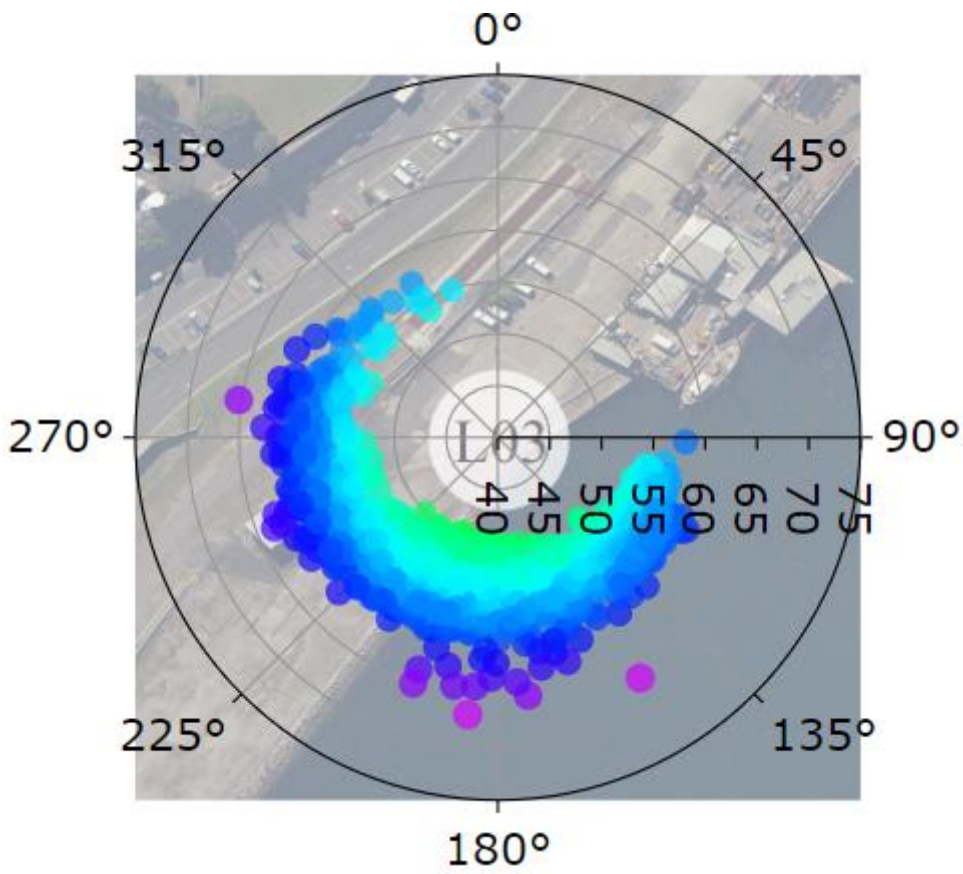


Figure 4.2 Typical vessel polar (directional) plot

4.2 Kondili (GLB8) and Pioneer (GLB7) – January 15 – January 15, 2024

The Kondili and Pioneer were berthed in Glebe Island 8 and Glebe Island 7 simultaneously, therefore individual noise levels could not be obtained. Noise levels were assigned to the Kondili during this visit, however the measured noise level is the cumulative level from both vessels. As all noise levels were compliant during these visits, a detailed noise assessment has not been undertaken.

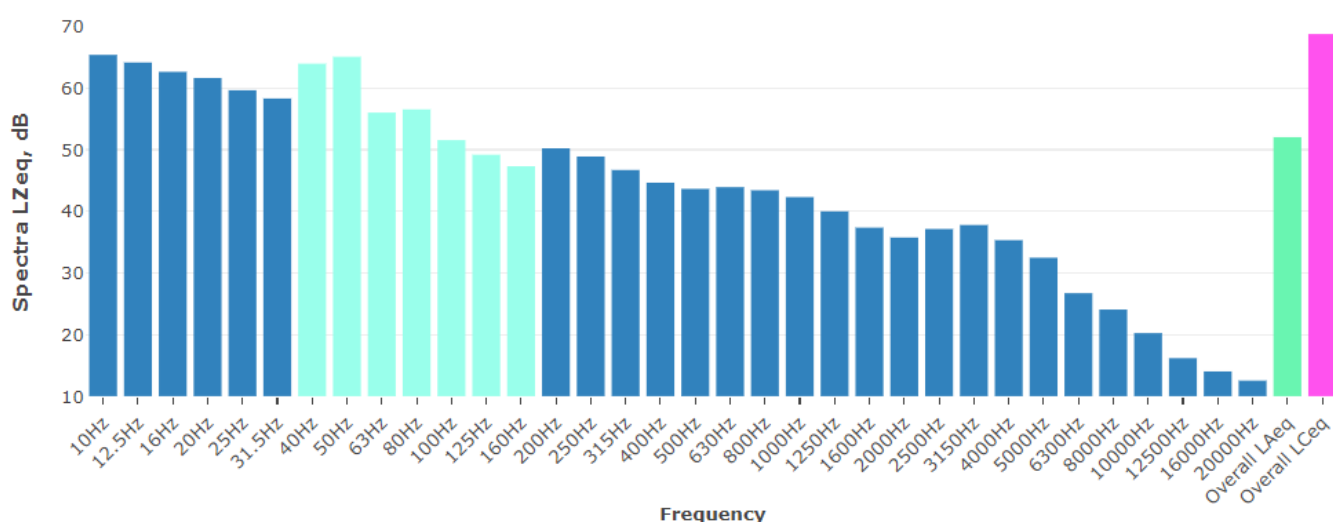
4.2.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
January 17, 2024	Day	L03	L _{Aeq, 15 hour} ¹	56	No	No	60	Yes
	Night		L _{Aeq, 1 hour} ¹	52	No	No	55	Yes
			L _{Amax}	64	-	-	65	Yes
January 18, 2024	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}	58	-	-	65	Yes
January 19, 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

4.2.2 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

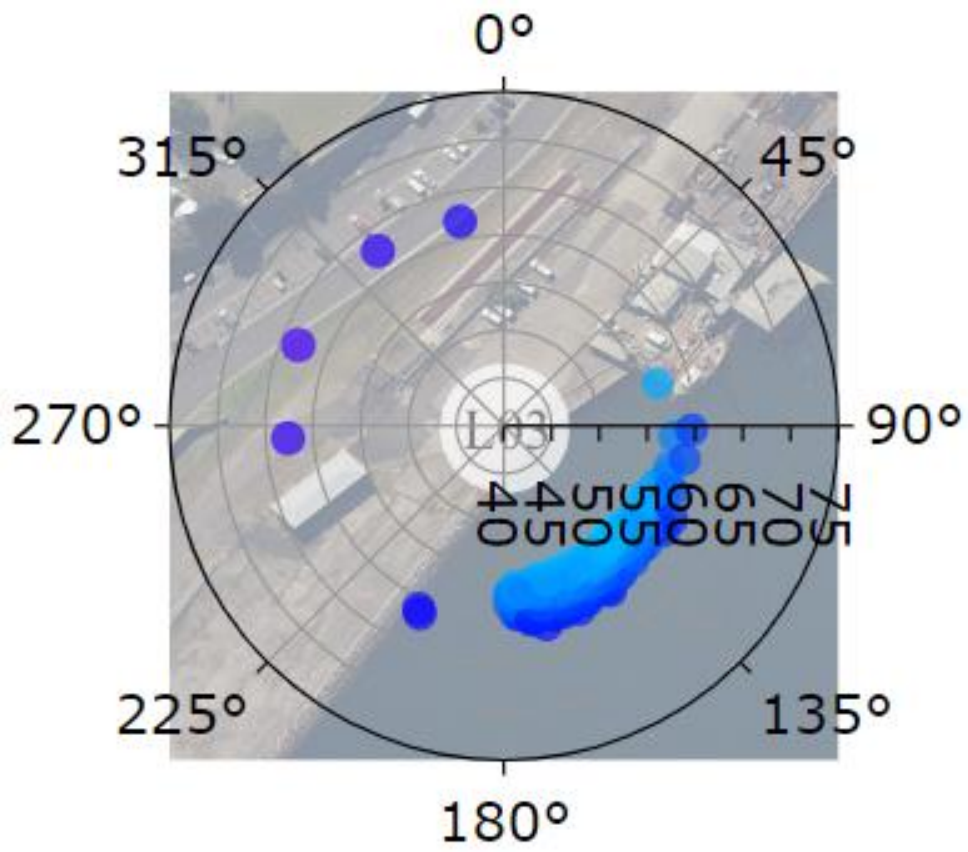


Figure 4.4 Typical vessel polar (directional) plot

4.3 Pioneer (GLB7) – January 17 – January 19, 2024

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
January 17, 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}	57	-	-	65	Yes
January 18, 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}	69 ⁴	-	-	65	Yes ⁴
January 19, 2024	Day	L03	L _{Aeq, 15 hour} ¹	50	No	Yes	60	Yes
	Night		L _{Aeq, 1 hour} ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

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
- This maximum level event only occurred once during the night-time hours and occurred just prior to 7 am on the 19 January. Given the time that hits occurred, and given it only occurred once, this is not considered an adverse impact. The vessel was compliant with the night time vessel noise trigger level at all other times.

4.4 Additional information

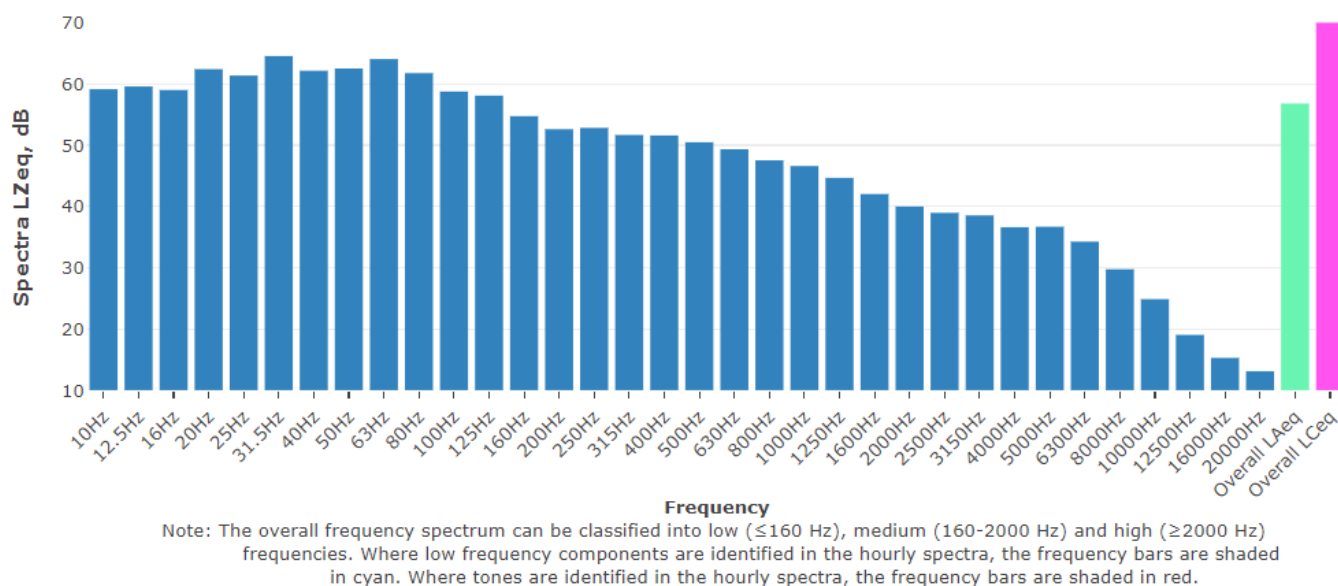


Figure 4.5 Typical vessel spectrum – noise level at L03

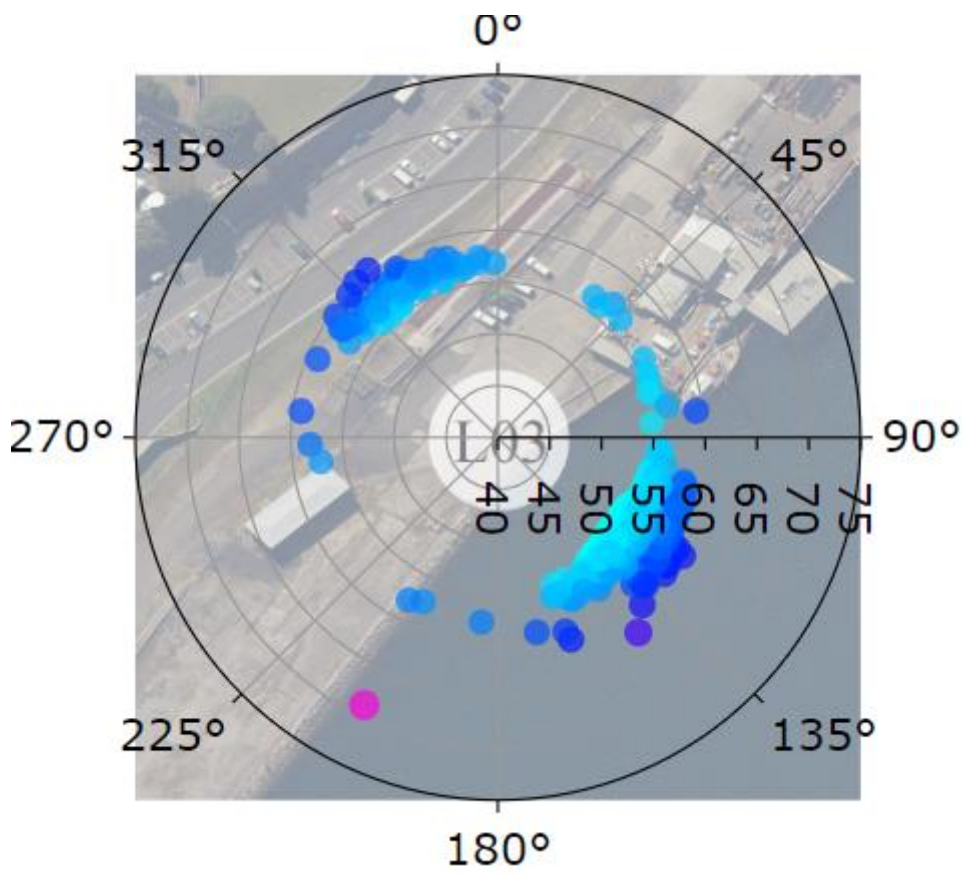


Figure 4.6 Typical vessel polar (directional) plot

4.5 CSL Reliance (GLB7) – January 20 – January 22, 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
January 19, 2024 ⁴	Day	L03	L _{Aeq} , 15 hour ¹	-	-	-	60	-
	Night		L _{Aeq} , 1 hour ¹	52	No	Yes	55	Yes
			L _{Amax}	63	-	-	65	Yes
January 20, 2024	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	Yes	55	Yes
			L _{Amax}	61	-	-	65	Yes
January 21, 2024	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	No	Yes	55	Yes
			L _{Amax}	64	-	-	65	Yes
January 22, 2024	Day	L03	L _{Aeq} , 15 hour ¹	51	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 period was from on January 20, between 00:10 (arrival) and 7 am

4.5.2 Additional information

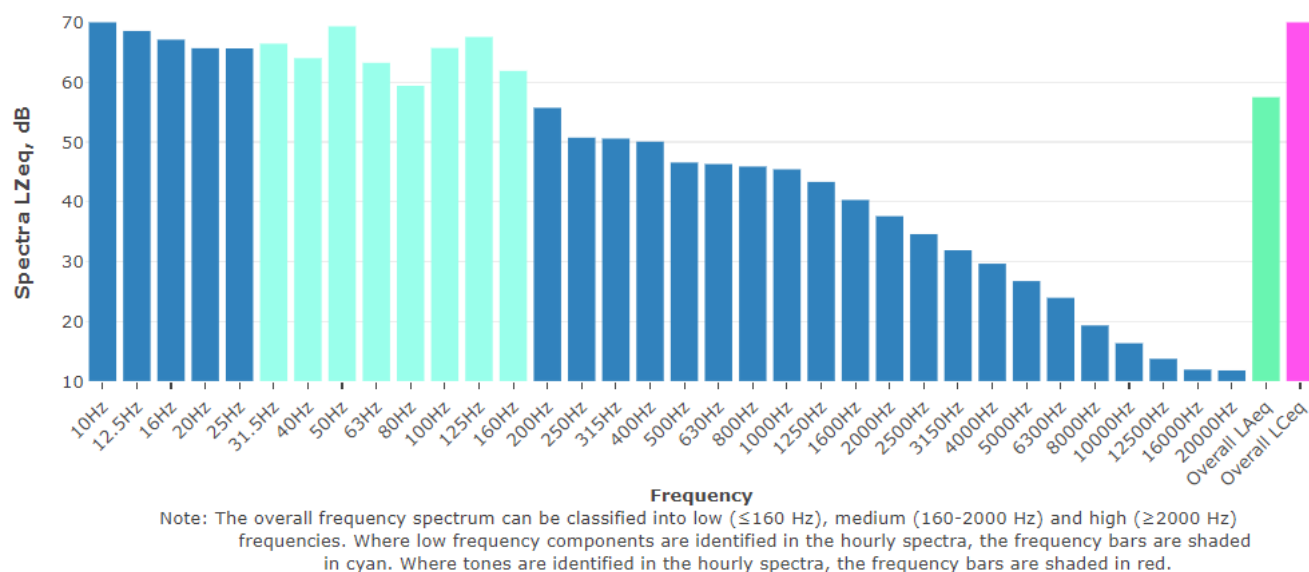


Figure 4.7 Typical vessel spectrum – noise level at L03

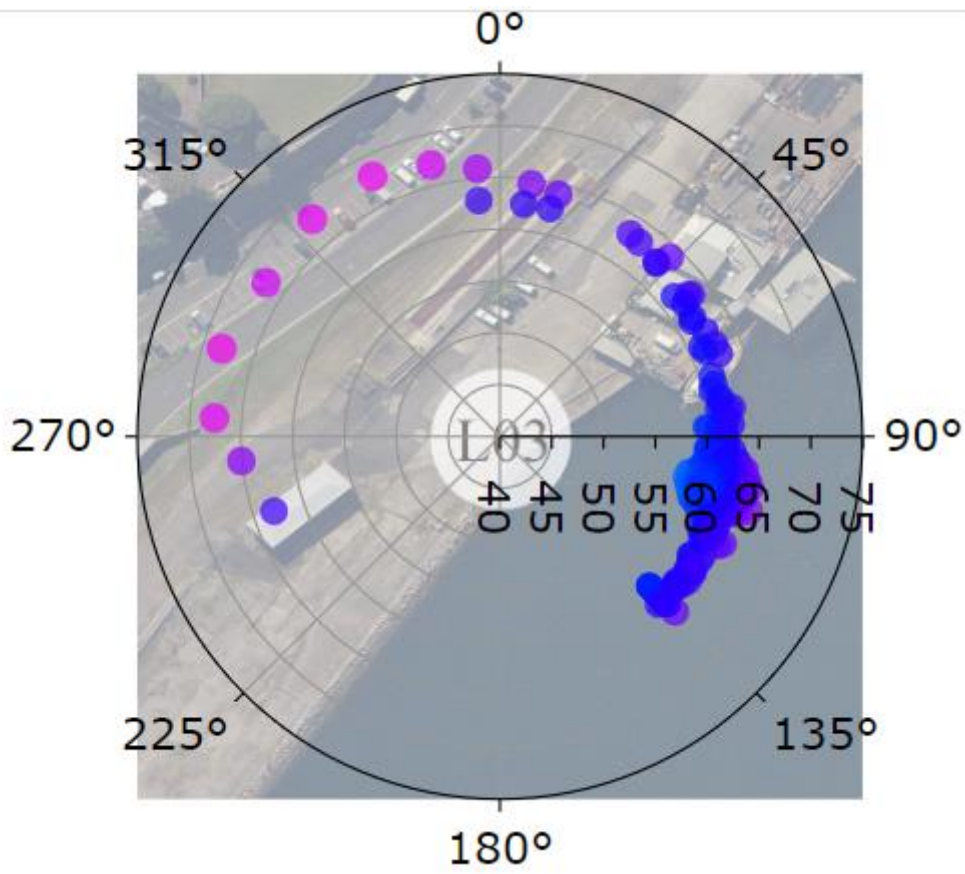


Figure 4.8 Typical vessel polar (directional) plot

4.6 Kondili (GLB8) – January 25 – January 27, 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
January 25, 2024	Day	L03	L _{Aeq, 15 hour} ¹	53	No	No	60	Yes
	Night		L _{Aeq, 1 hour} ¹	53	Yes	No	55	Yes
			L _{Amax}	65	-	-	65	Yes
January 26, 2024	Day	L03	L _{Aeq, 15 hour} ¹	55	No	Yes	60	Yes
	Night		L _{Aeq, 1 hour} ¹	51	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
January 27, 2024	Day	L03	L _{Aeq, 15 hour} ¹	54	No	No	60	Yes
	Night		L _{Aeq, 1 hour} ¹	-	-	-	55	-
			L _{Amax}	-	-	-	65	-

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

4.6.2 Additional information

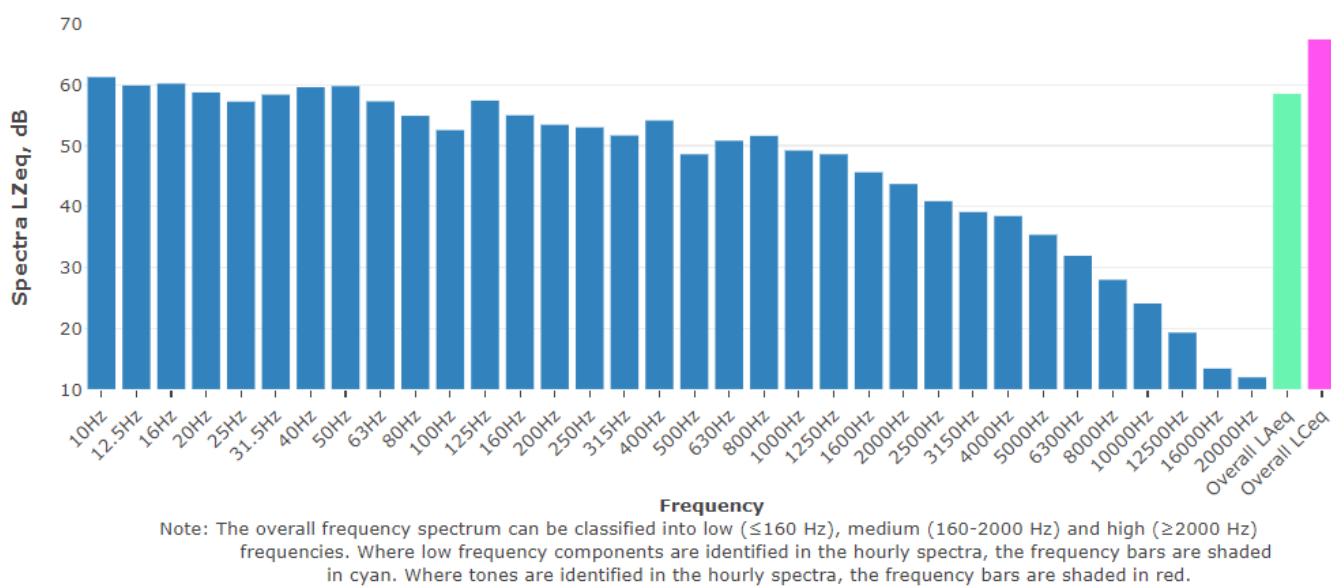


Figure 4.9 Typical vessel spectrum – noise level at L03

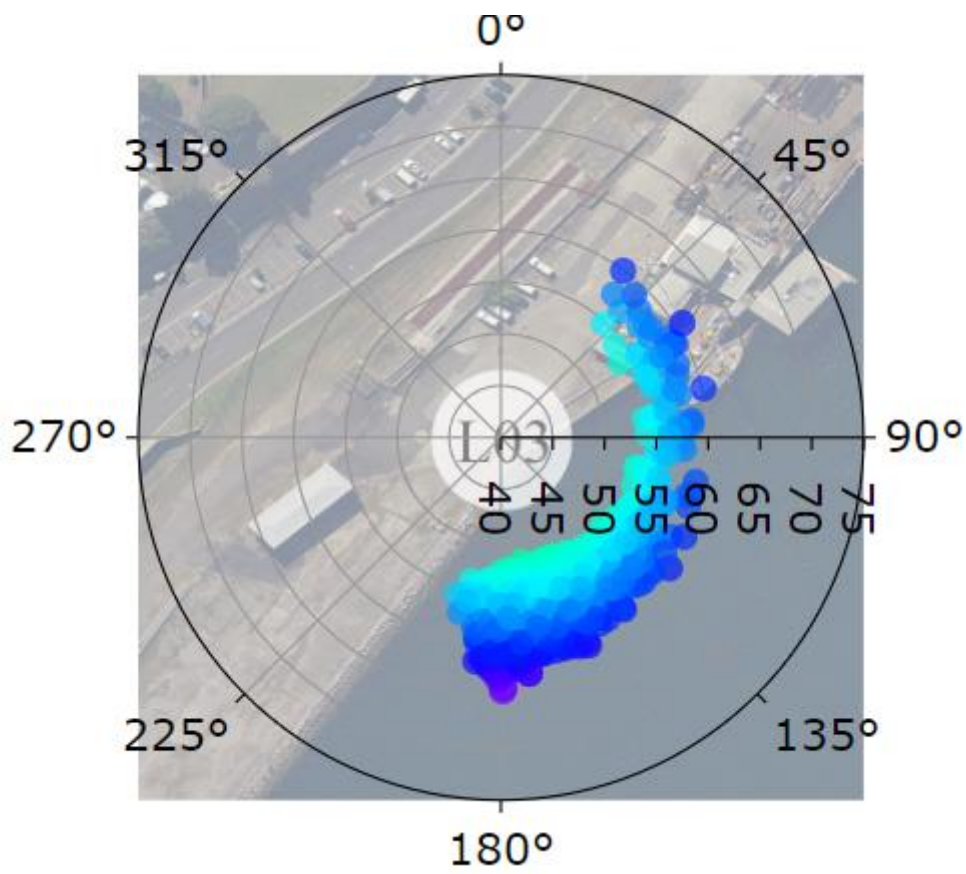


Figure 4.10 Typical vessel polar (directional) plot



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