



Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

April 2023



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 April 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)	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
		L02	Maintenance Building on White Bay		14529642	Initial calibration level 91.5 dBA Min. deviation = 0.3 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 = 0.1 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 = -0.1 dB
Vessel name	Arrival date and time		Departure date and time		Berth location	Applicable noise monitoring location/s
Bulk vessels						
Akuna	April 11, 2023 / 09:56		April 13, 2023 / 12:59		GLB8	L03
Adelie	April 12, 2023 / 10:53		April 15, 2023 / 20:09		GLB7	L03
Pioneer	April 26, 2023 / 05:18		April 30, 2023 / 21:32		GLB7	L03

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Cruise vessels				
Pacific Adventure	April 3, 2023 / 04:35	April 3, 2023 / 17:11	WBCT	L01
Pacific Adventure	April 12, 2023 / 07:01	April 12, 2023 / 16:04	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
Akuna	Apr 11 – Apr 13	L03	55	52	59	60	55	65	Yes	Yes
Adelie	Apr 12 – Apr 15	L03	55	54	63	60	55	65	Yes	Yes
Pioneer	Apr 26 – Apr 30	L03	53	57 ⁴	58	60	55	65	Yes	No ⁴

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 exceedance is due to a 5 dB correction for tonal noise. See Section 4.4 regarding the Pioneer

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	Apr 3	L01	60	61	N/A	58	N/A	No
Pacific Adventure	Apr 12	L01	60	-	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."

3.2.1 Exceedance of Pacific Adventure

The results above indicate that the noise from the Pacific Adventure is above the Vessel Noise Trigger Level of 58 dBA during the night time period. Detailed investigations have been undertaken and consultation with the vessel operator is ongoing to determine appropriate actions to reduce noise emission from the vessel.

4. Detailed results – bulk vessels

4.1 Akuna – April 11 – April 13, 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
April 11, 2023	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	45	No	Yes	55	Yes
			L _{Amax}	59 ⁴	-	-	65	Yes
April 12, 2023	Day	L03	L _{Aeq} , 15 hour ¹	54	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	52	No	No	55	Yes
			L _{Amax}	59	-	-	65	Yes
April 13, 2023	Day	L03	L _{Aeq} , 15 hour ¹	55	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

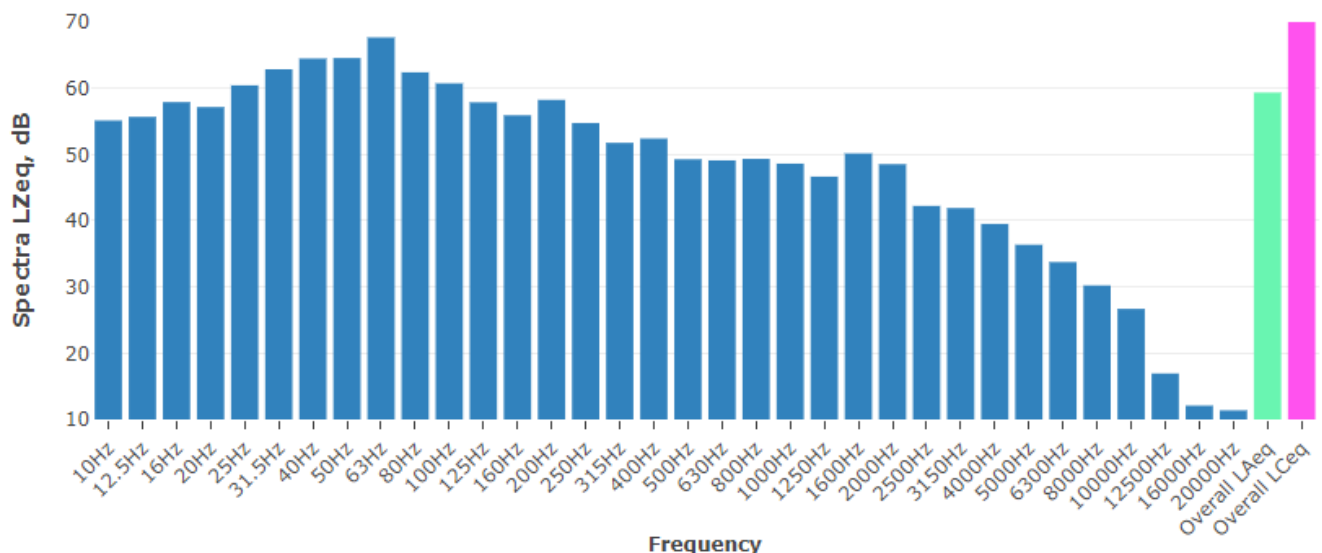
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) IMS indicated the maximum noise level was 70 dBA during this period. A review of the data indicated that it is unlikely that the maximum noise level was associated with the vessel.

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

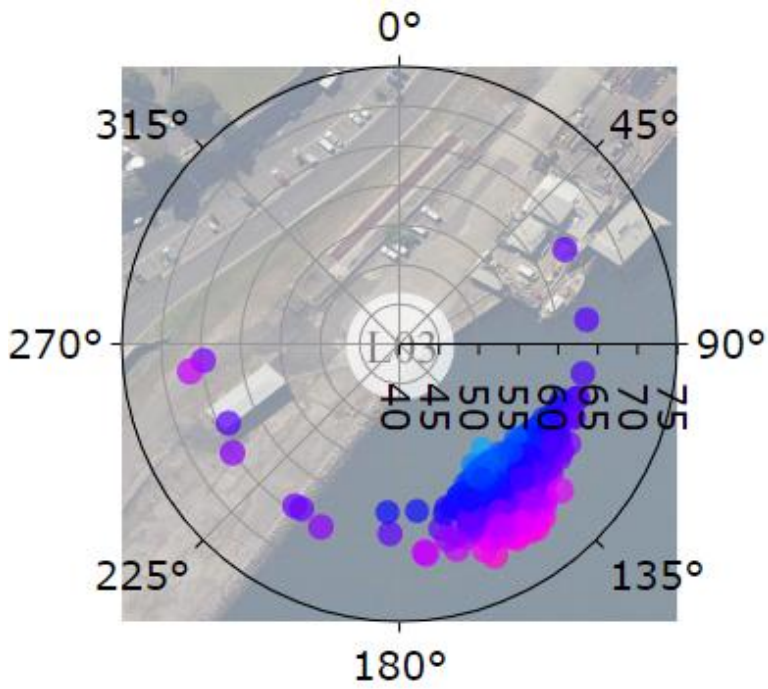


Figure 4.2 Typical vessel polar (directional) plot

4.2 Adelie – April 12 – April 15, 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
April 13, 2023	Day	L03	L _{Aeq} , 15 hour ¹	55	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	Yes	55	Yes
			L _{Amax}	63	-	-	65	Yes
April 14, 2023	Day	L03	L _{Aeq} , 15 hour ¹	55	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	No	55	Yes
			L _{Amax}	57	-	-	65	Yes
April 15, 2023	Day	L03	L _{Aeq} , 15 hour ¹	51	No ⁴	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
- IM indicated that tonal noise was present during the last hour of the visit. It is unlikely that noise from the Adelie was tonal and is likely attributable to extraneous sources

4.2.2 Additional information

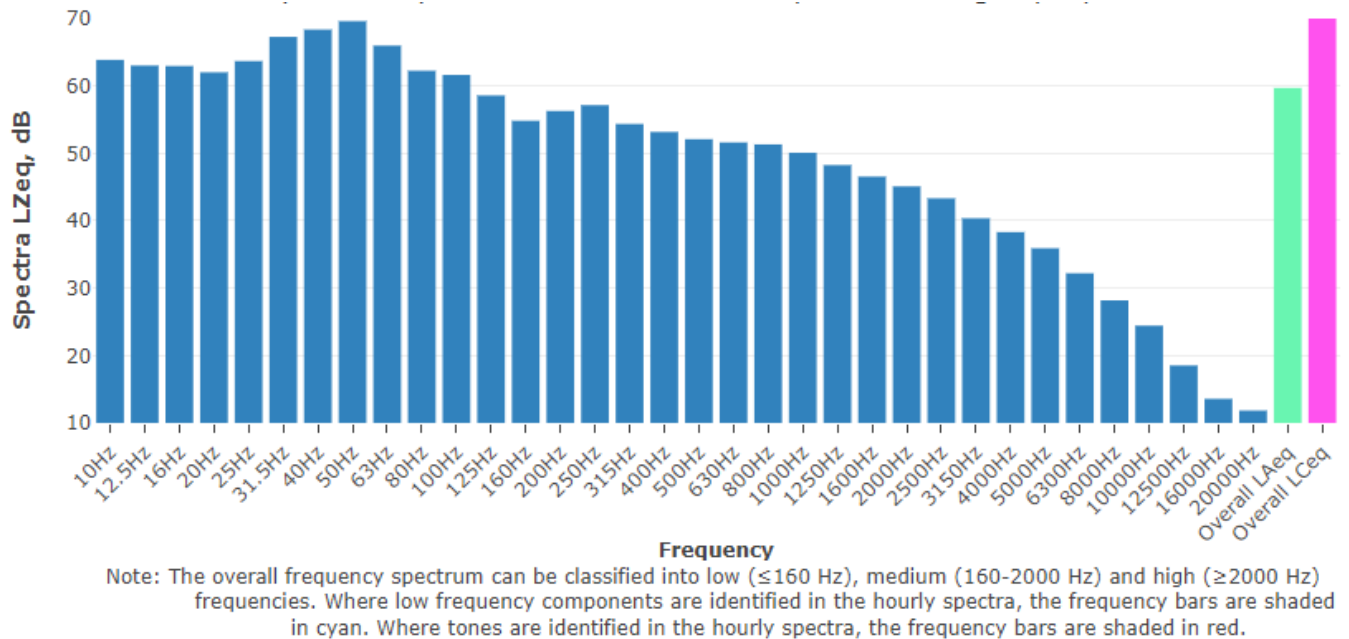


Figure 4.3 Typical vessel spectrum – noise level at L03

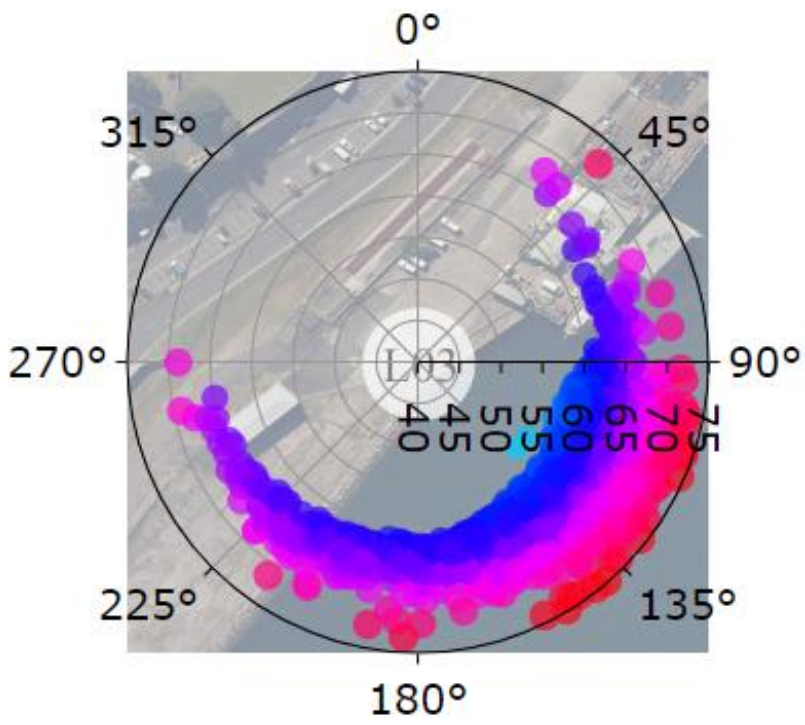


Figure 4.4 Typical vessel polar (directional) plot

4.3 Pioneer – April 26 – April 30, 2023 (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
April 26, 2023	Day	L03	L _{Aeq} , 15 hour ¹	-	-	-	60	Yes
	Night		L _{Aeq} , 1 hour ¹	47	No	Yes	55	Yes
			L _{Amax}	57	-	-	65	Yes
April 27, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	52	No	No	55	Yes
			L _{Amax}	58	-	-	65	Yes
April 28, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	No	No	60	Yes
	Night		L _{Aeq} , 1 hour ¹	57 ⁴	Yes	No	55	No ⁴
			L _{Amax}	57	-	-	65	Yes
April 29, 2023	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}	56	-	-	65	Yes
April 30, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	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) See discussion below regarding tonal noise

4.3.2 Discussion regarding tonal noise

During the period between April 28 at 10 pm and 29 April 7 am, the Pioneer was determined to be tonal at 200 Hz. A review of the data shows that there is regularly a tone present at 200 Hz, however the adjacent frequency bands generally have high enough noise levels to mask this tone. During this period, the adjacent frequencies were low enough for the tone to be determined as being tonal in accordance with the NSW EPA's Noise Policy for Industry.

As such, a 5 dB penalty has been applied to the measured values during this period which leads to a non-compliance with the night-time trigger level. Note that during the previous visit, the same tonal noise was present however this was for a short duration.

A discussion with the shipping operator should be held to determine the source of this noise.

4.3.3 Additional information

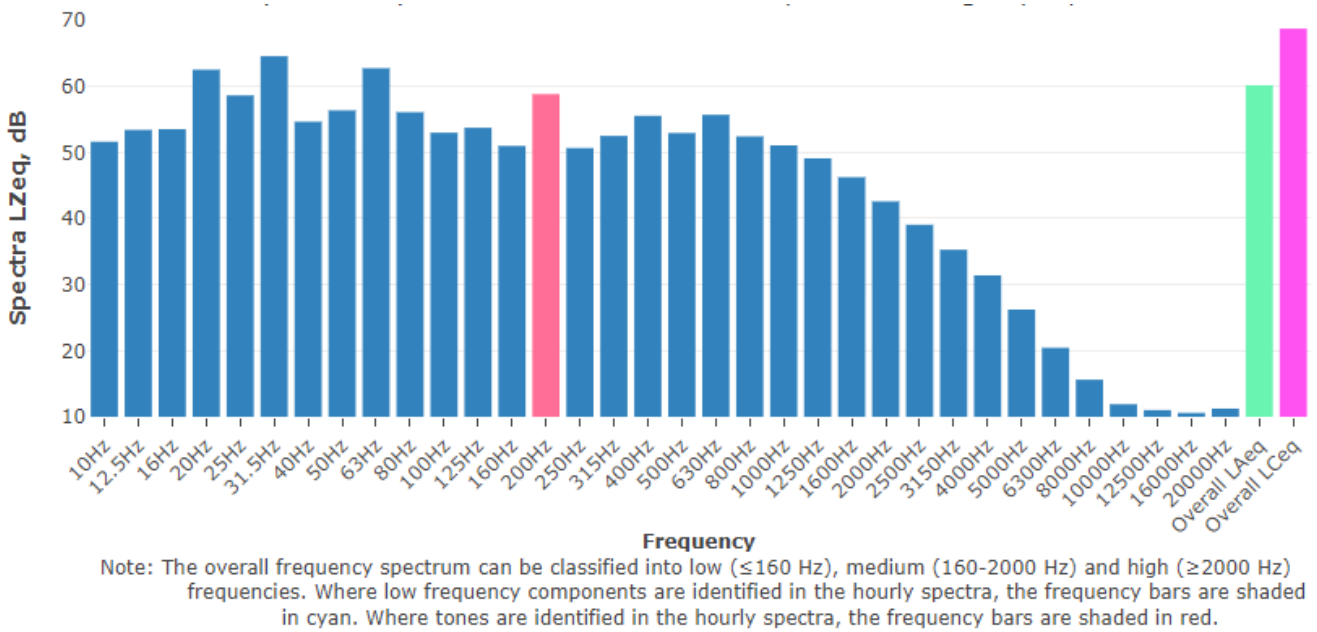


Figure 4.5 Typical vessel spectrum – noise level at L03 (during periods of tonal noise)

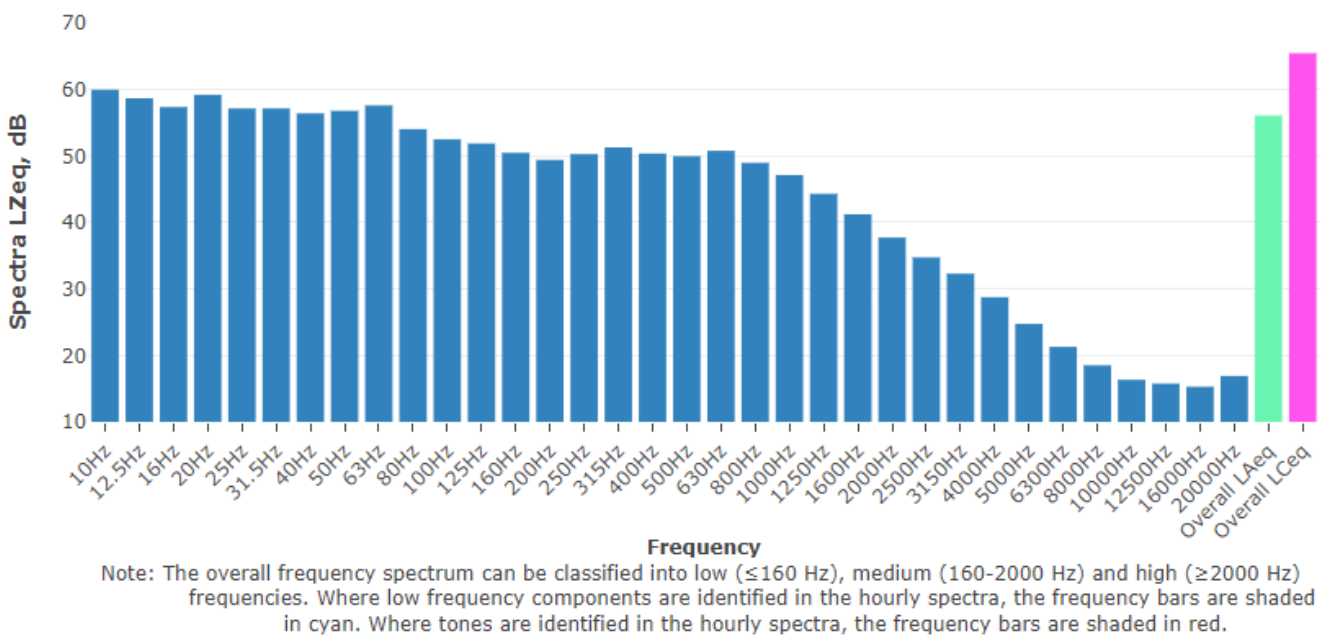


Figure 4.6 Typical vessel spectrum – noise level at L03 (during all other periods)

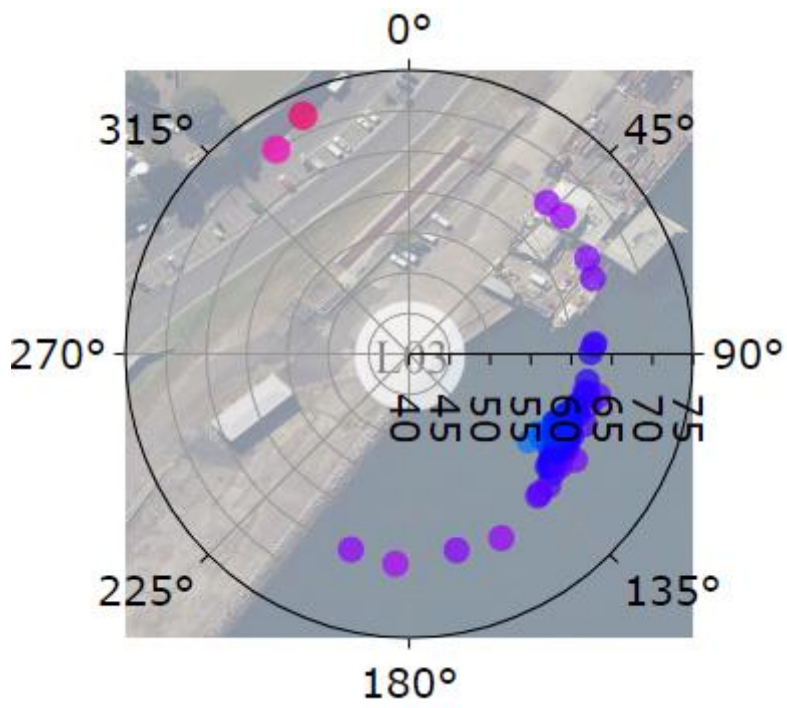


Figure 4.7 Typical vessel polar (directional) plot



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