



Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

January 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 January 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 = 0.2 dB Max. deviation = 0.3 dB
		L02	Maintenance Building on White Bay		14529642	Initial calibration level 91.5 dBA Min. deviation = 0.1 dB Max. deviation = 0.2 dB
		L03	Adjacent to White Bay 2		14529643	Initial calibration level 91.7 dBA Min. deviation = 0.1 dB Max. deviation = 0.2 dB
		L04	Onsite at Glebe Island		14529644	Initial calibration level 92.3 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	January 4, 2023 / 09:55	January 7, 2023 / 08:00		GLB8	L03	
Pioneer	January 9, 2023 / 12:21	January 13, 2023 / 15:00		GLB7	L03	
CSL Reliance	January 23, 2023 / 10:42	January 26, 2023 / 01:30		GLB7	L03	

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Cruise vessels				
Noordam	January 2, 2023 / 02:08	January 2, 2023 / 16:18	WBCT	L01
True North	January 2, 2023 / 21:55	January 3, 2023 / 08:50	WHT3	L02
Westerdam	January 3, 2023 / 04:57	January 3, 2023 / 18:45	WBCT	L01
Silver Shadow	January 4, 2023 / 07:35	January 6, 2023 / 00:06	WHT4	L02
Viking Orion	January 4, 2023 / 10:47	January 6, 2023 / 18:05	WBCT	L01
Azamara Quest	January 6, 2023 / 08:15	January 8, 2023 / 18:13	WHT4	L02
Silver Shadow	January 7, 2023 / 07:36	January 8, 2023 / 19:54	WBCT	L01
Pacific Adventure	January 9, 2023 / 06:50	January 9, 2023 / 16:28	WBCT	L01
Norwegian Spirit	January 15, 2023 / 05:57	January 15, 2023 / 17:57	WBCT	L01
Regatta	January 16, 2023 / 06:58	January 16, 2023 / 17:17	WBCT	L01
Silver Whisper	January 23, 2023 / 06:58	January 24, 2023 / 00:04	WBCT	L01
Viking Mars	January 23, 2023 / 12:13	January 24, 2023 / 18:37	WHT4	L02
Viking Mars	January 24, 2023 / 18:37	January 25, 2023 / 18:17	WBCT	L01
Pacific Adventure	January 24, 2023 / 08:13	January 24, 2023 / 17:08	WBCT	L01
Seven Seas Explorer	January 26, 2023 / 04:43	January 26, 2023 / 22:56	WHT4	L02
Pacific Explorer	January 26, 2023 / 04:43	January 26, 2023 / 17:04	WBCT	L01
Star Breeze	January 28, 2023 / 16:57	January 28, 2023 / 16:57	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	Jan 4 – Jan 7	L03	58	57	61	60	55	65	Yes	No
Pioneer	Jan 9 – Jan 13	L03	54	54	59	60	55	65	Yes	Yes
CSL Reliance	Jan 23 – Jan 26	L03	53	51	63	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

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 ¹ L _{Aeq} (15 hr)	Night ² L _{Aeq} (9 hr)	Day ⁴ L _{Aeq} (15 hr)	Night ² L _{Aeq} (9 hr)	Day ⁴	Night
Noordam	Jan 2	L01	57	50	N/A	58	N/A	Yes
True North	Jan 2/3	L02	48	48	N/A	58	N/A	Yes
Westerdam	Jan 3	L01	59	51	N/A	58	N/A	Yes
Silver Shadow	Jan 4	L02	54	54	N/A	58	N/A	Yes
Silver Shadow	Jan 5/6	L02	57	53	N/A	58	N/A	Yes
Viking Orion	Jan 4	L01	54	54	N/A	58	N/A	Yes
Viking Orion	Jan 5	L01	56	50	N/A	58	N/A	Yes
Viking Orion	Jan 6	L01	58	-	N/A	58	N/A	-
Azamara Quest	Jan 6	L02	57	52	N/A	58	N/A	Yes
Azamara Quest	Jan 7	L02	55	-	N/A	58	N/A	-
Silver Shadow	Jan 7	L01	55	50	N/A	58	N/A	Yes
Silver Shadow	Jan 8	L01	53	-	N/A	58	N/A	-
Pacific Adventure	Jan 9	L01	59	56	N/A	58	N/A	Yes
Norwegian Spirit	Jan 15	L01	56	54	N/A	58	N/A	Yes
Regatta	Jan 16	L01	54	49	N/A	58	N/A	Yes
Silver Whisper	Jan 23/24	L01	56	54	N/A	58	N/A	Yes
Viking Mars	Jan 23/24	L02	56	48	N/A	58	N/A	Yes
Viking Mars	Jan 24/25	L01	55	47	N/A	58	N/A	Yes
Pacific Adventure	Jan 24	L01	59	-	N/A	58	N/A	-
Seven Seas Explorer	Jan 26	L02	57	53	N/A	58	N/A	Yes
Pacific Explorer	Jan 26	L01	56	-	N/A	58	N/A	-
Star Breeze	Jan 28	L01	51	46	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."

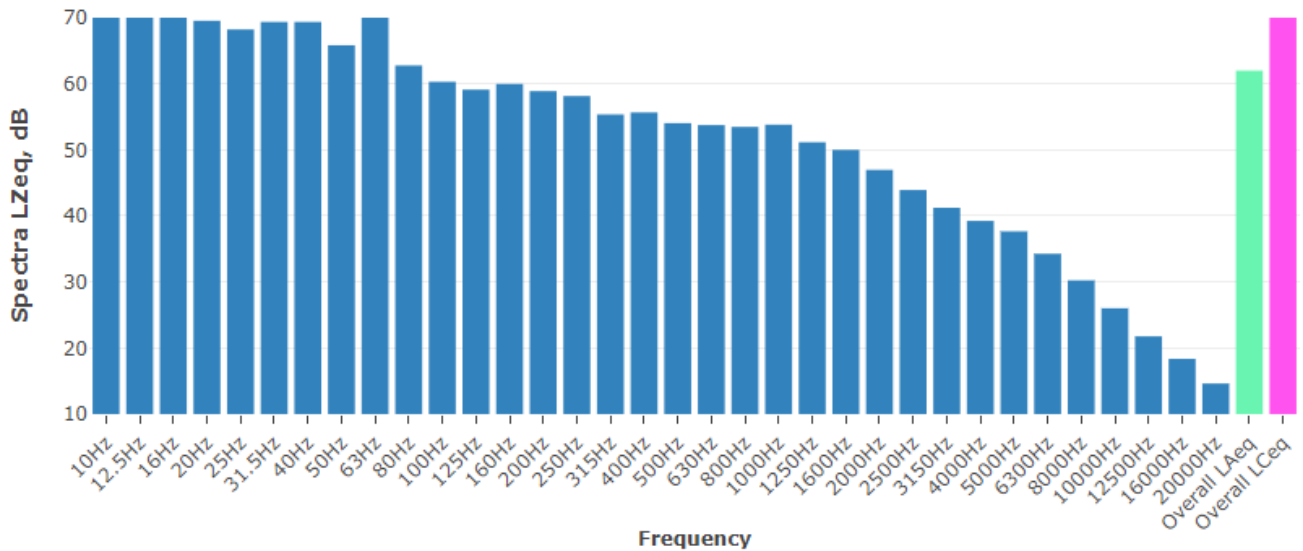
4. Detailed results – bulk vessels

4.1 Luga – January 4 – January 7, 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
January 4, 2023	Day	L03	L _{Aeq} , 15 hour ¹	56	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	57	No	Yes	55	No
			L _{Amax}	61	-	-	65	Yes
January 5, 2023	Day	L03	L _{Aeq} , 15 hour ¹	57	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	Yes	55	Yes
			L _{Amax}	61	-	-	65	Yes
January 6, 2023	Day	L03	L _{Aeq} , 15 hour ¹	56	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	55	No	Yes	55	Yes
			L _{Amax}	58	-	-	65	Yes
January 7, 2023	Day	L03	L _{Aeq} , 15 hour ¹	58	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	No	Yes	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

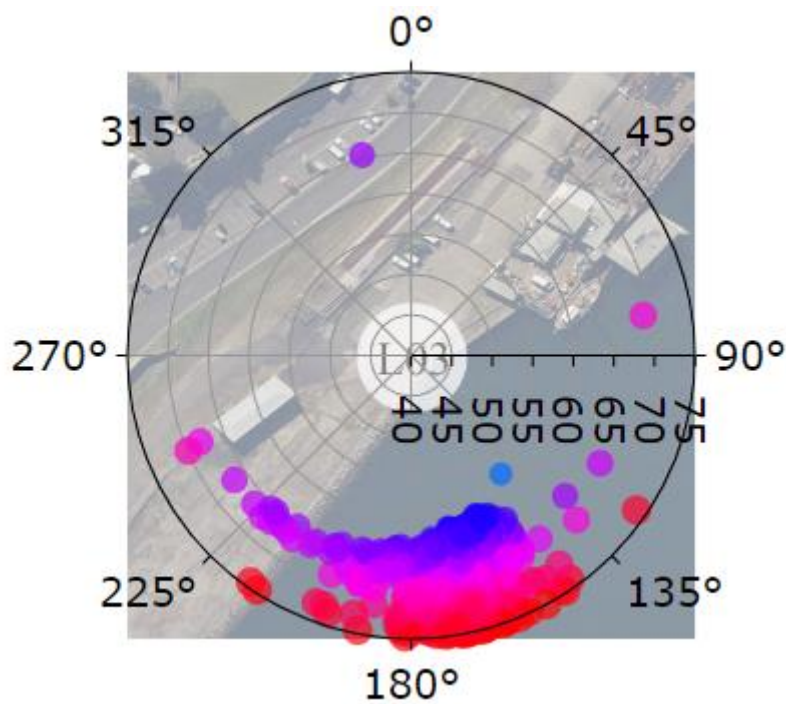


Figure 4.2 Typical vessel polar (directional) plot

4.2 Pioneer – January 9 – January 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
January 9, 2023	Day	L03	L _{Aeq} , 15 hour ¹	54	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	Yes	55	Yes
			L _{Amax}	57	-	-	65	Yes
January 10, 2023	Day	L03	L _{Aeq} , 15 hour ¹	54	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	53	No	Yes	55	Yes
			L _{Amax}	58	-	-	65	Yes
January 11, 2023	Day	L03	L _{Aeq} , 15 hour ¹	54	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-.4	-.4	-.4	55	-.4
			L _{Amax}	-.4	-.4	-.4	65	-.4
January 12, 2023	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	54	No	Yes	55	-
			L _{Amax}	59	-	-	65	-
January 13, 2023	Day	L03	L _{Aeq} , 15 hour ¹	53	No	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	-	No	Yes	55	-
			L _{Amax}	-	-	-	65	-

Notes

1) Daytime period (7 am to 10 pm) – 15 hours

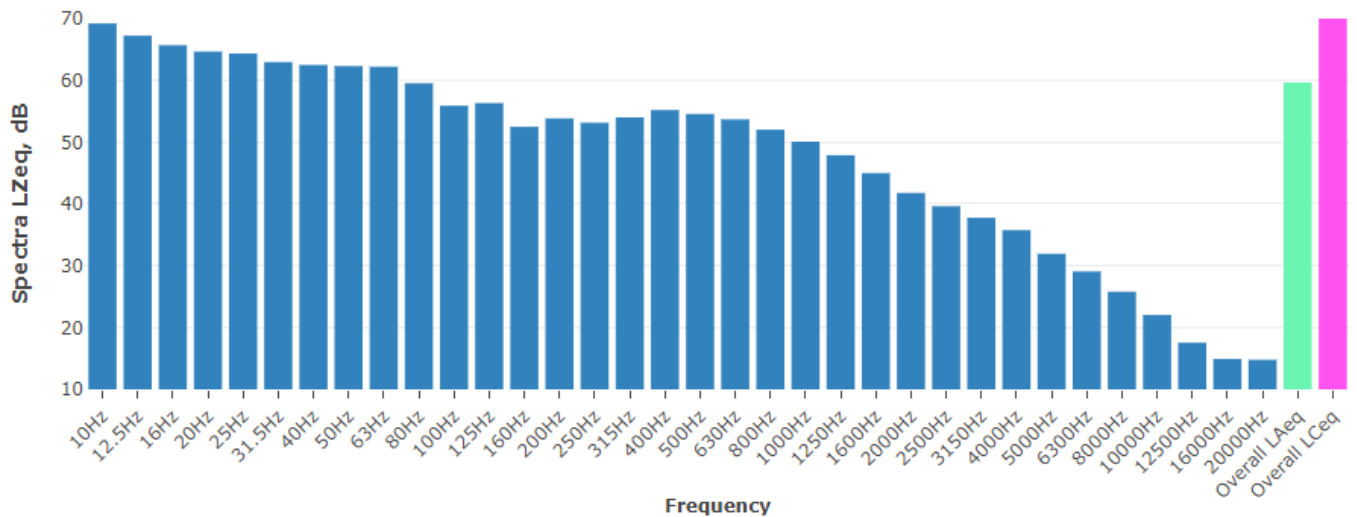
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) Data was not captured during this period as the weather station feed was down and weather conditions could not be confirmed

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

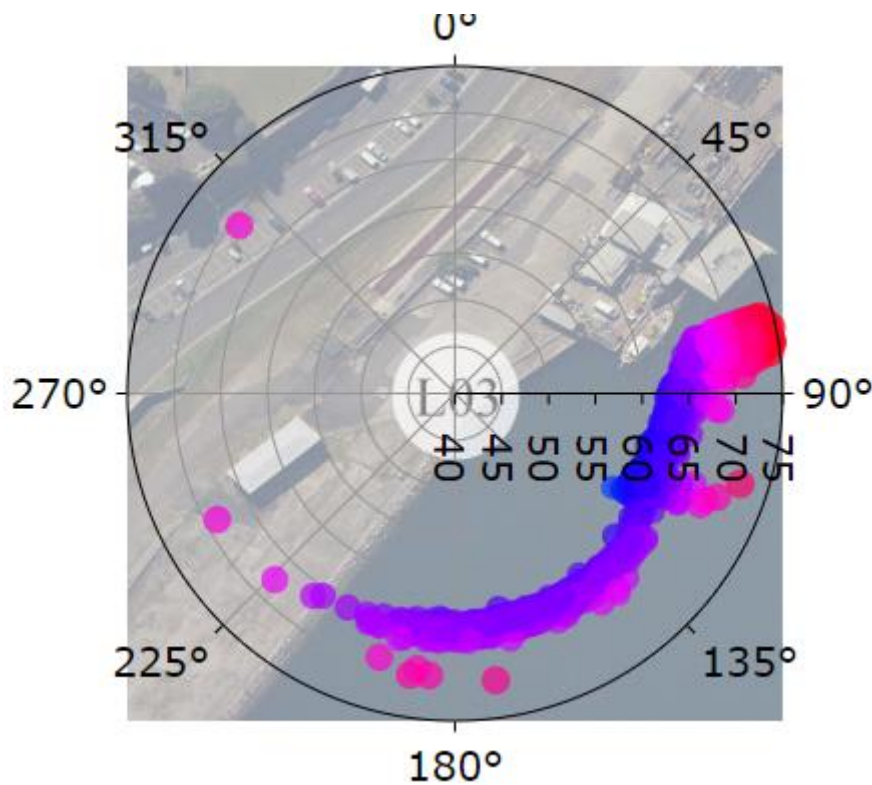


Figure 4.4 Typical vessel polar (directional) plot

4.3 CSL Reliance – January 23 – January 26, 2023 (GLB7)

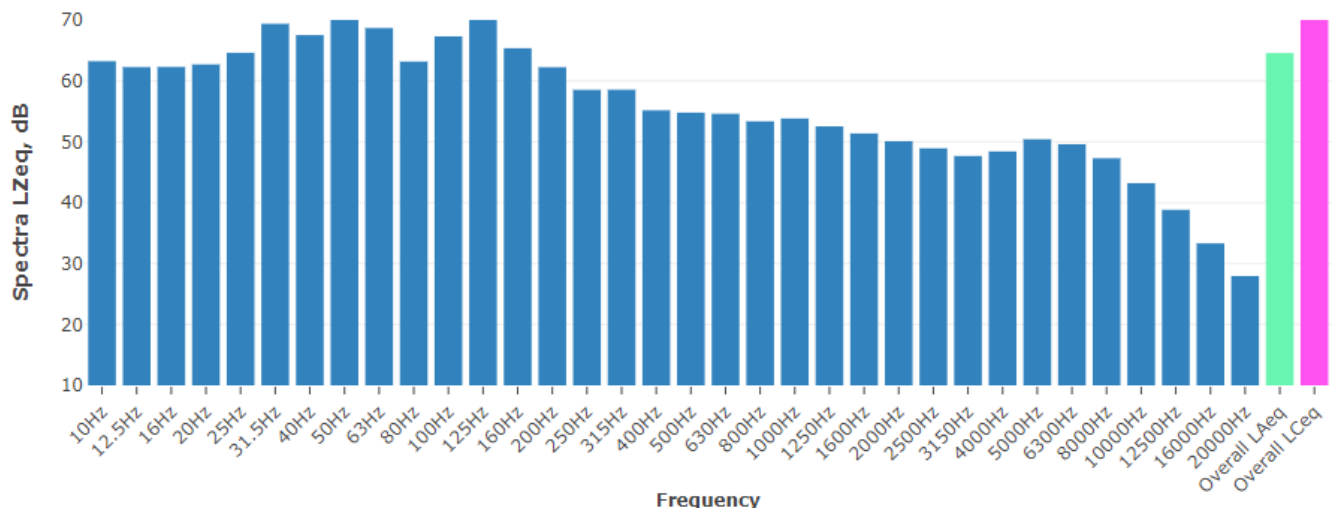
4.3.1 Daily noise monitoring results

Date	Time period ¹	Monitor location	Noise descriptor	Vessel noise level dBA ²	Tonal	LFN ³	Vessel Noise Trigger Levels, dBA	Compliance
January 23, 2023	Day	L03	L _{Aeq} , 15 hour ¹	53	Yes	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	Yes	Yes	55	Yes
			L _{Amax}	61	-	-	65	Yes
January 24, 2023	Day	L03	L _{Aeq} , 15 hour ¹	53	Yes	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	50	Yes	Yes	55	Yes
			L _{Amax}	63	-	-	65	Yes
January 25/26, 2023	Day	L03	L _{Aeq} , 15 hour ¹	52	Yes	Yes	60	Yes
	Night		L _{Aeq} , 1 hour ¹	51	-	Yes	55	Yes
			L _{Amax}	57	-	-	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

4.3.2 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

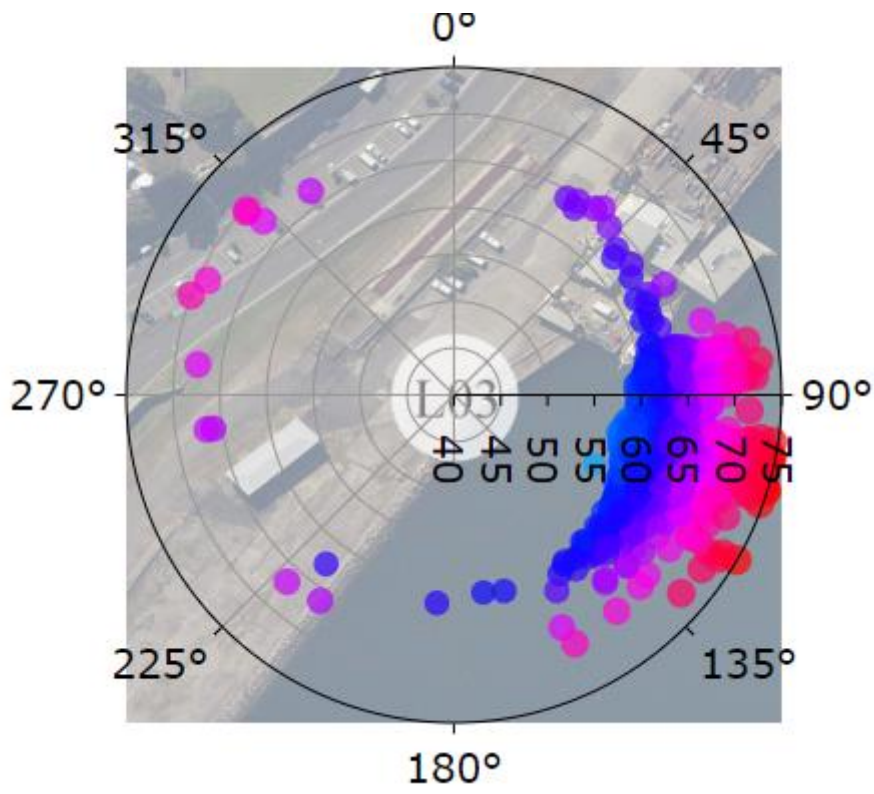


Figure 4.6 Typical vessel polar (directional) plot



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