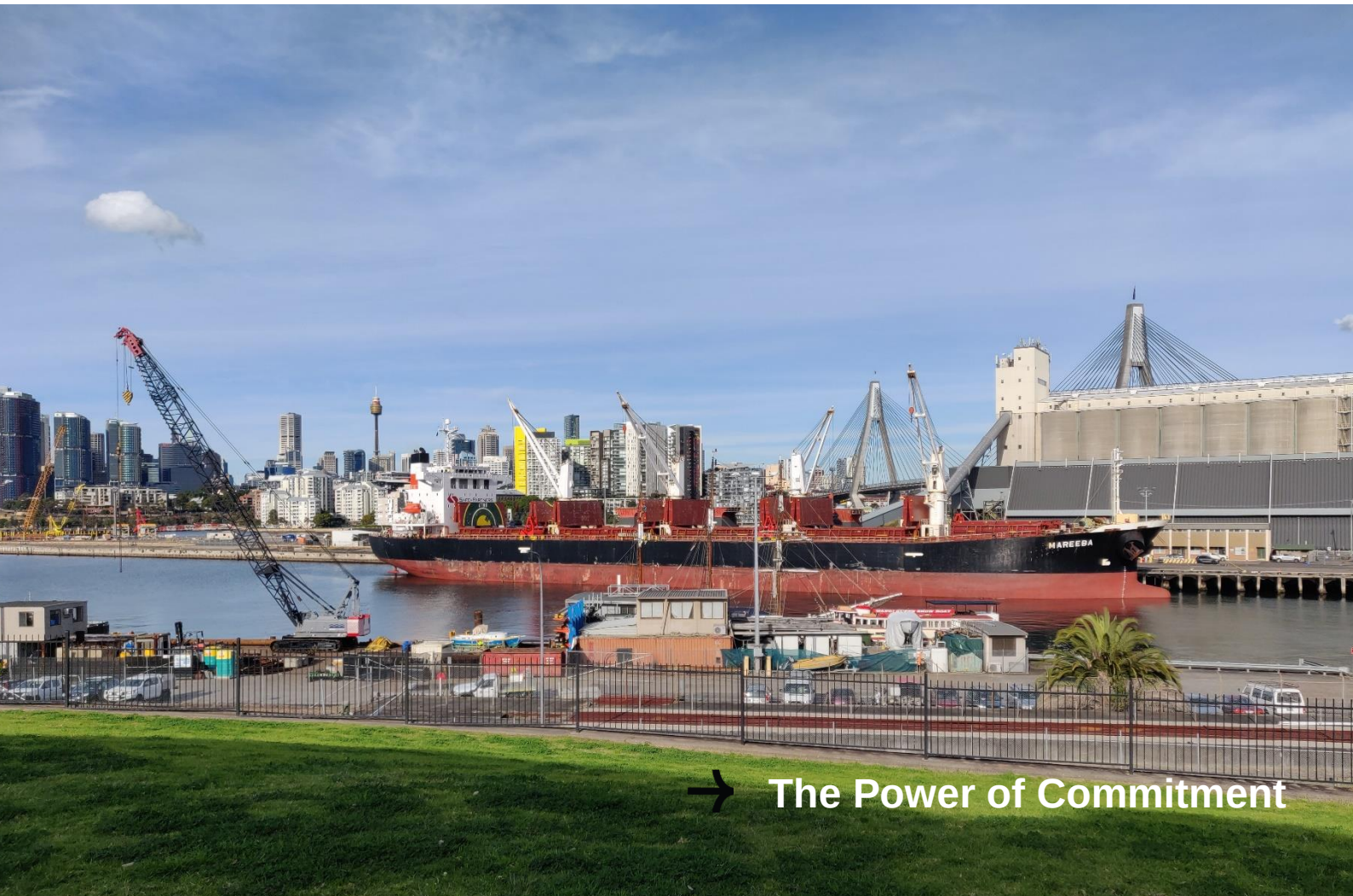
Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

October 2023



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 – October 2023
Revision version	Rev 0
Project number	12540862

Document status

Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	C Gordon	E Milton		E Milton		6/12/2023

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 October 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 schedule7

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 90.6 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 = 0.0 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		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 = 0.0 dB

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Research vessels				
Investigator	September 9, 2023 / 19:34	October 9, 2023 / 09:11	WHT5 (WBCT)	L01

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Bulk vessels				
Akuna	October 5, 2023 / 23:58	October 8, 2023 / 13:00	GLB8	L03
Pioneer	October 11, 2023 / 01:28	October 14, 2023 / 15:00	GLB7	L03
Adelie	October 22, 2023 / 10:56	October 25, 2023 / 19:42	GLB7	L03
Akuna	October 26, 2023 / 04:18	October 27, 2023 / 22:55	GLB8	L03
Cruise vessels				
Pacific Adventure	October 16, 2023 / 06:52	October 16, 2023 / 20:06	WBCT	L01
Disney Wonder	October 27, 2023 / 05:31	October 27, 2023 / 19:27	WBCT	L01

3. Compliance summary

3.1 Research vessel

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
Investigator	Sep 30 – Oct 9	L01	57	53	NA[4]	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) Data for this visit was processed manually. A review of the data indicated that maximum noise levels were unlikely to be associated with the vessel, rather vehicle passbys on Grafton Street.

3.2 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	Oct 5 – Oct 8	L03	56	51	64	60	55	65	Yes	Yes
Pioneer	Oct 11 – Oct 14	L03	52	52	69[4]	60	55	65	Yes	Yes[4]
Adelie	Oct 22 – Oct 25	L03	55	55	64	60	55	65	Yes	Yes
Akuna	Oct 26 – Oct 27	L03	57	57[5]	64	60	55	65	Yes	Yes[5]

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) Two maximum noise level events occurred during the visit, one at 4:09 am on October 12 and one at 1:30 am on October 14. It is unlikely that this was associated with the vessel as the Pioneer does not undertake unloading activities during the night time period. Maximum noise levels were below the criteria at all other times.

Note: 5) This noise level occurred during the departure of the Akuna and is likely to be impacted by noise from tugs and pilot vehicle. As such this is not representative of the vessel noise level of the Akuna. Noise levels were below 55 dBA during all other night time periods.

3.3 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	Oct 16	L01	57	52	N/A	58	N/A	Yes
Disney Wonder	Oct 27	L01	59	55	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 and research vessels

4.1 Investigator – September 30 – October 9, 2023 (WHT5)

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 30, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 1, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	55	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 2, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	52	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	52	No	No	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 3, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	52	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	48	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 4, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	55	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 5, 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}	NA	-	-	65	Yes
October 6, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	57	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	53	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 7, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	54	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 8, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	52	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	NA	-	-	65	Yes
October 9, 2023	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

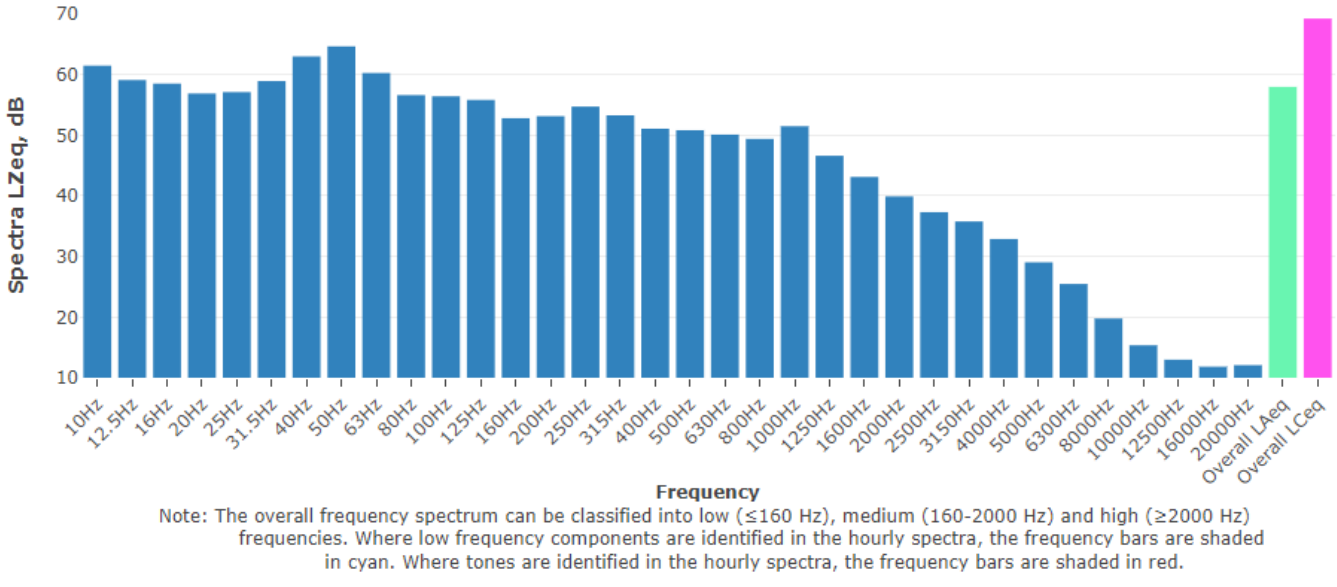
4.2 Akuna – October 5 – October 8, 2023 (GLB8)

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
October 5, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	-	-	-	60	-
	Night		$L_{Aeq, 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
October 6, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	56	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	60	-	-	65	Yes
October 7, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	54	No	Yes	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	48	No	Yes	55	Yes
			L_{Amax}	58	-	-	65	Yes
October 8, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	52	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

4.2.2 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 4.1 Typical vessel spectrum – noise level at L03

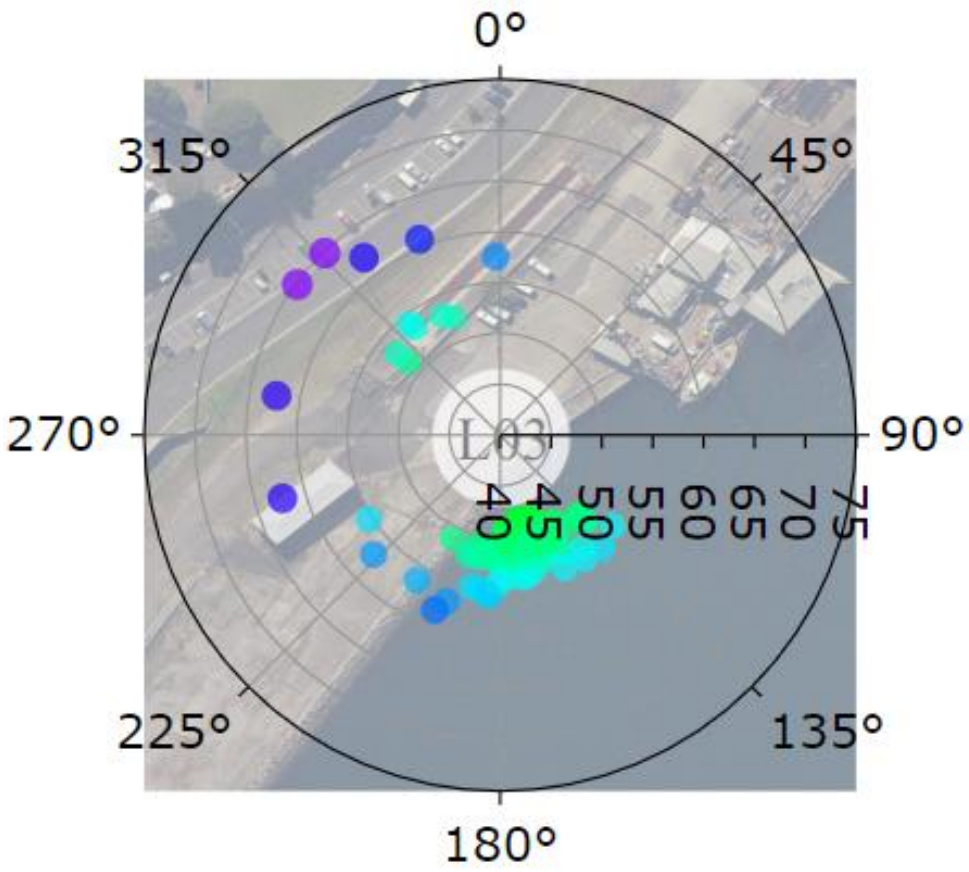


Figure 4.2 *Typical vessel polar (directional) plot*

4.3 Pioneer – October 11 – October 14, 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
October 10, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	-	-	-	60	-
	Night		$L_{Aeq,\ 1\ hour}$[1]	52	No	Yes	55	Yes
			L_{Amax}	62	-	-	65	Yes
October 11, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	52	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	48	No	Yes	55	Yes
			L_{Amax}	69[4]	-	-	65	Yes
October 12, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	48	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	50	No	Yes	55	Yes
			L_{Amax}	62	-	-	65	Yes
October 13, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	48	No	Yes	55	Yes
			L_{Amax}	69[4]	-	-	65	Yes
October 14, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	49	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) Two maximum noise level events occurred during the visit, one at 4:09 am on October 12 and one at 1:30 am on October 14. It is unlikely that this was associated with the vessel as the Pioneer does not undertake unloading activities during the night time period. Maximum noise levels were below the criteria at all other times.

4.3.2 Additional information

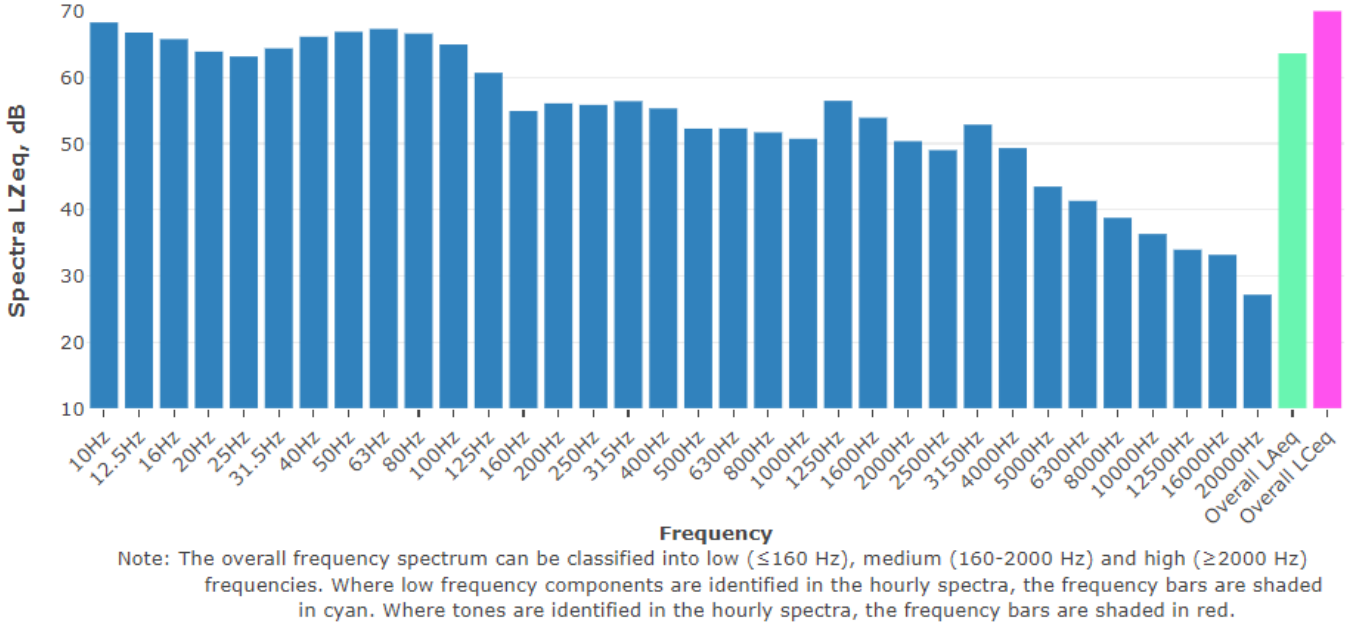


Figure 4.3 Typical vessel spectrum – noise level at L03

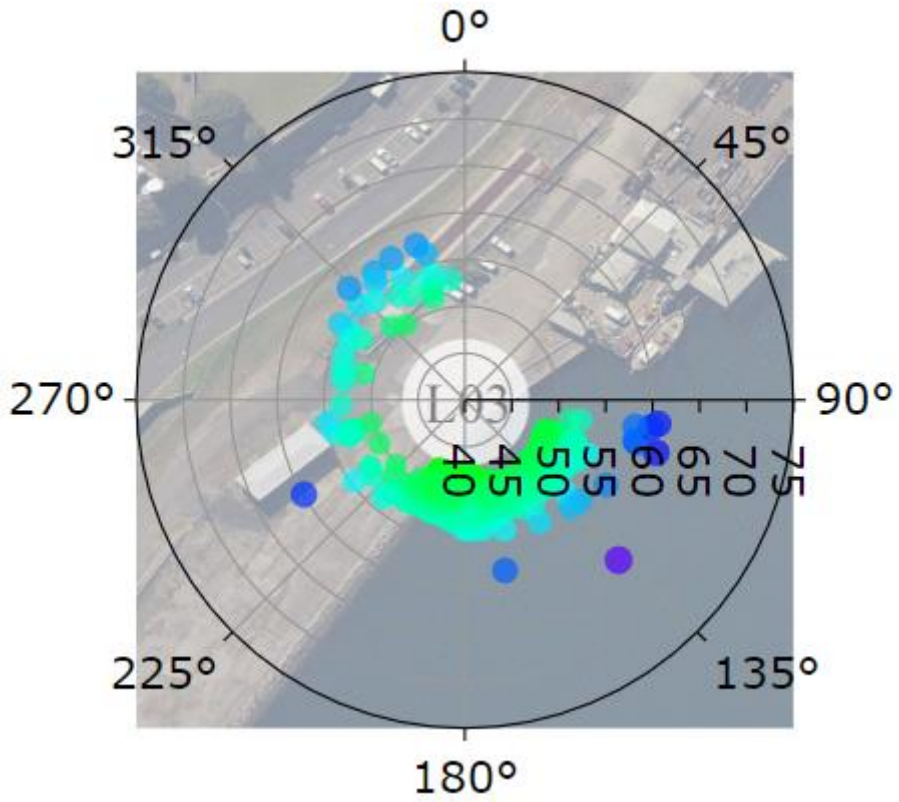


Figure 4.4 Typical vessel polar (directional) plot

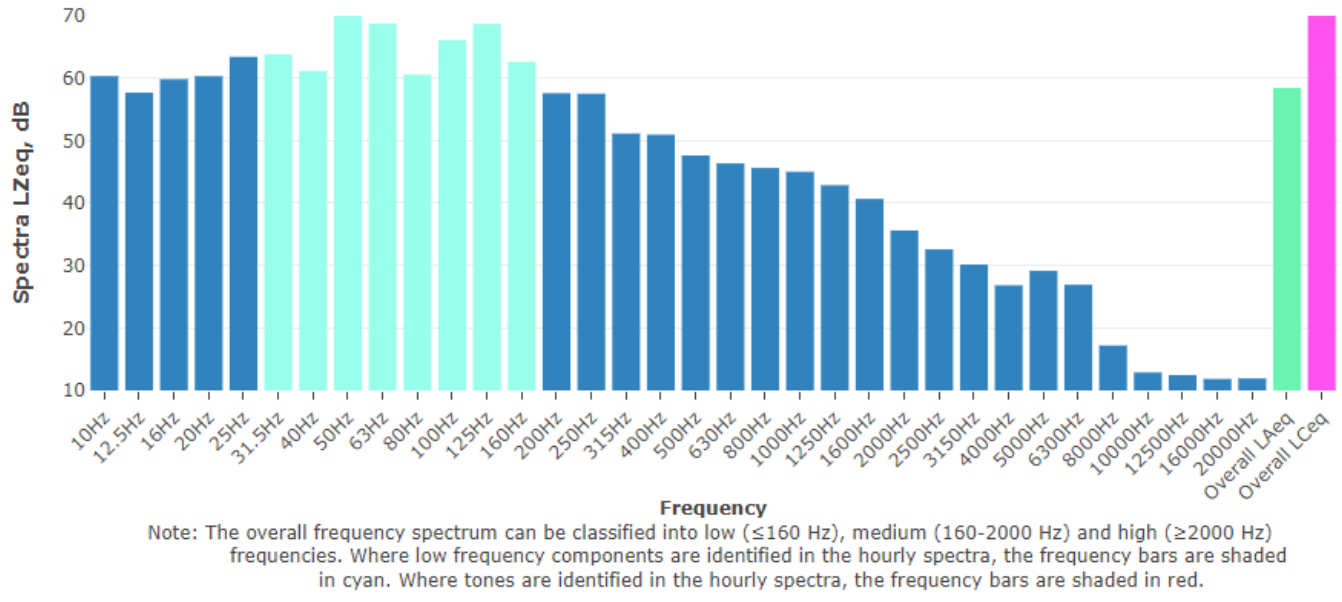
4.4 Adelie – October 22 – October 25, 2023 (GLB7)

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
October 22, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	53	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	55	No	Yes	55	Yes
			L_{Amax}	59	-	-	65	Yes
October 23, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	55	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-[4]	-	-	55	-
			L_{Amax}	-[4]	-	-	65	-
October 24, 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}	64	-	-	65	Yes
October 25, 2023	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) The IMS system was down for a short period on October 23 and as such, no night time noise levels were recorded.

4.4.2 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

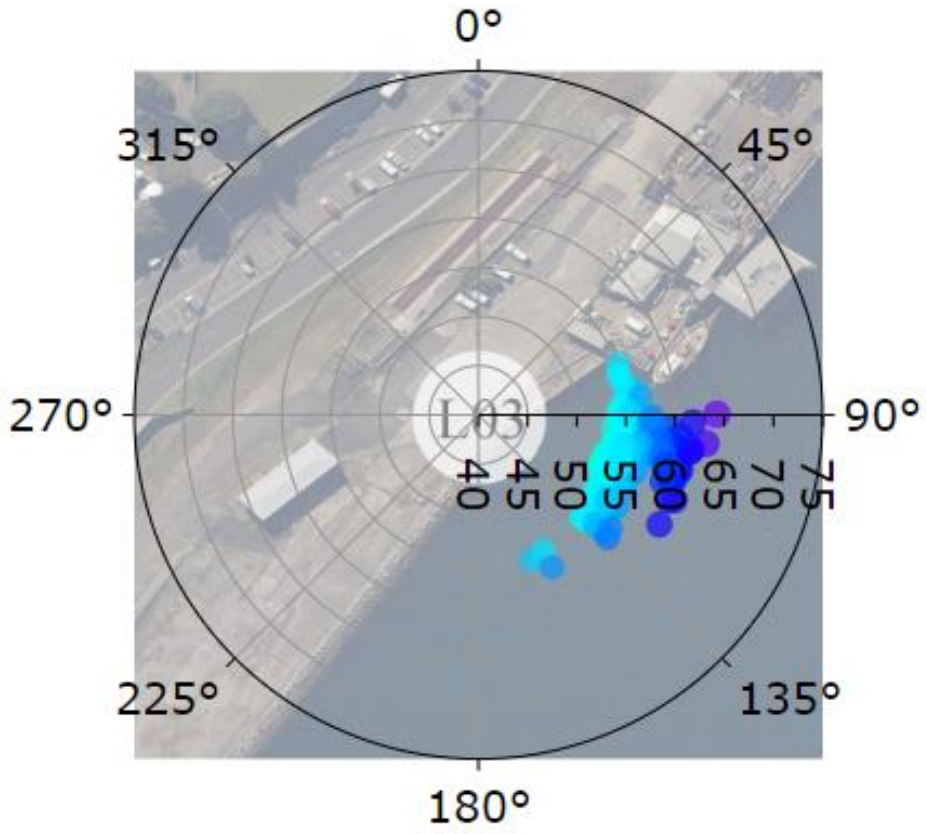


Figure 4.6 Typical vessel polar (directional) plot

4.5 Akuna – October 25 – October 27, 2023 (GLB8)

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
October 25, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	-	-	-	60	-
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
October 26, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	56	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	54	No	Yes	55	Yes
			L_{Amax}	63	-	-	65	Yes
October 25, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	57	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	57	No	Yes	55	Yes[4]
			L_{Amax}	61	-	-	65	Yes

Notes

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

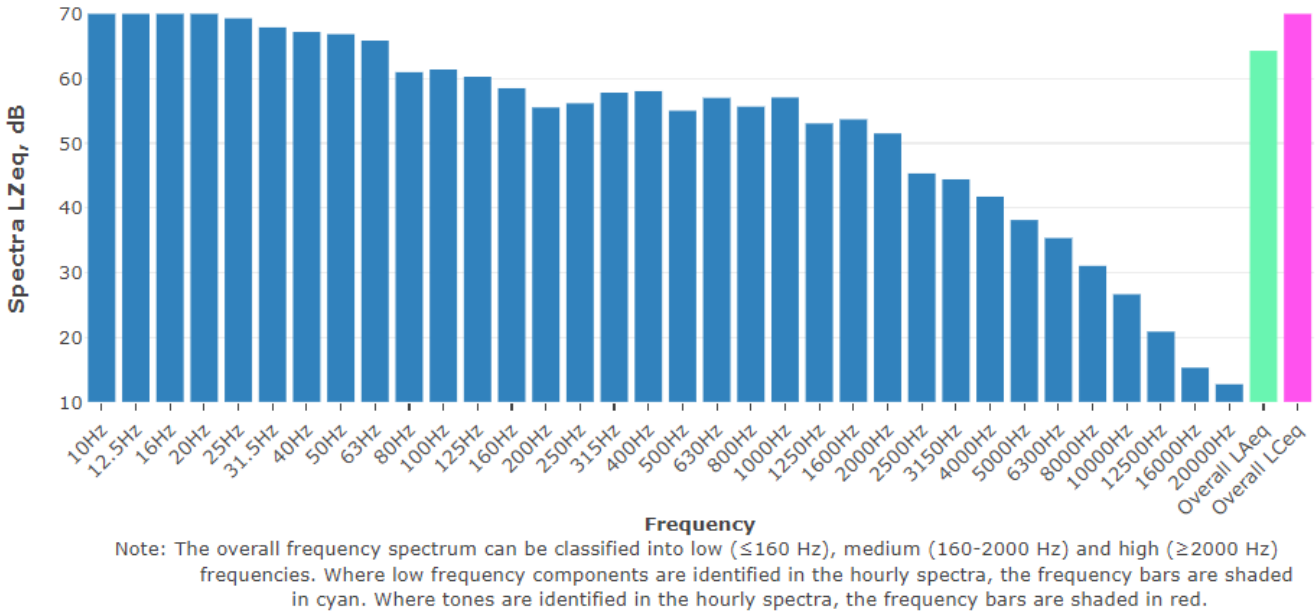
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) This noise level occurred during the departure of the Akuna and is likely to be impacted by noise from tugs and pilot vehicle. As such this is not representative of the vessel noise level of the Akuna. Noise levels were below 55 dBA during all other night time periods

4.5.2 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 4.7 Typical vessel spectrum – noise level at L03

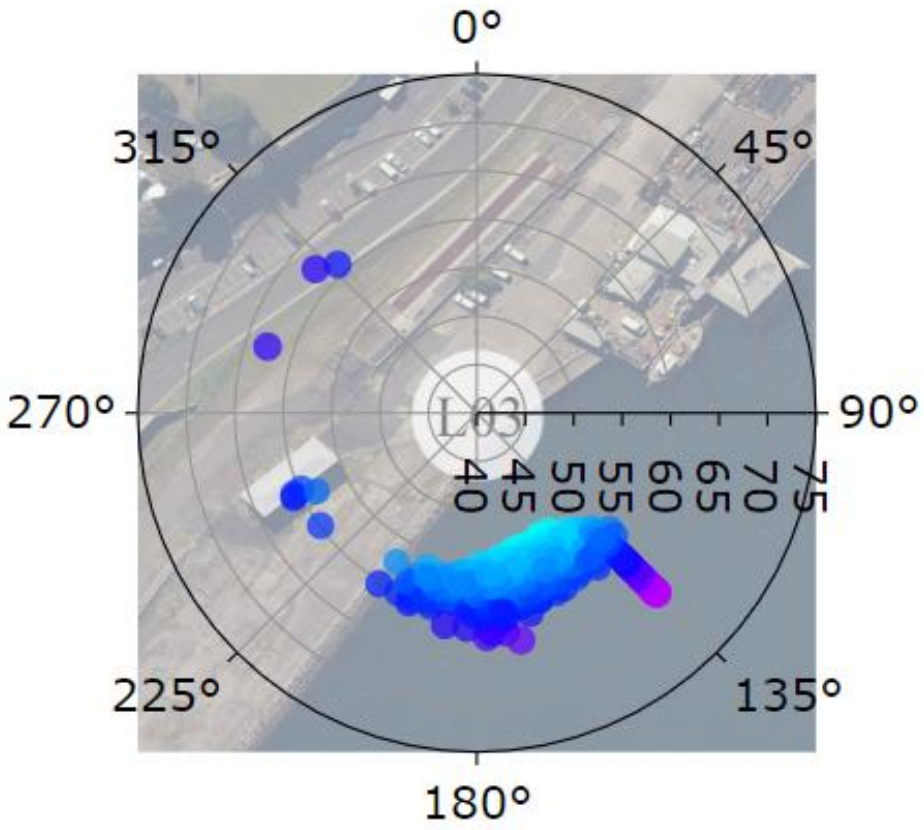


Figure 4.8 Typical vessel polar (directional) plot

ghd.com

The Power of Commitment