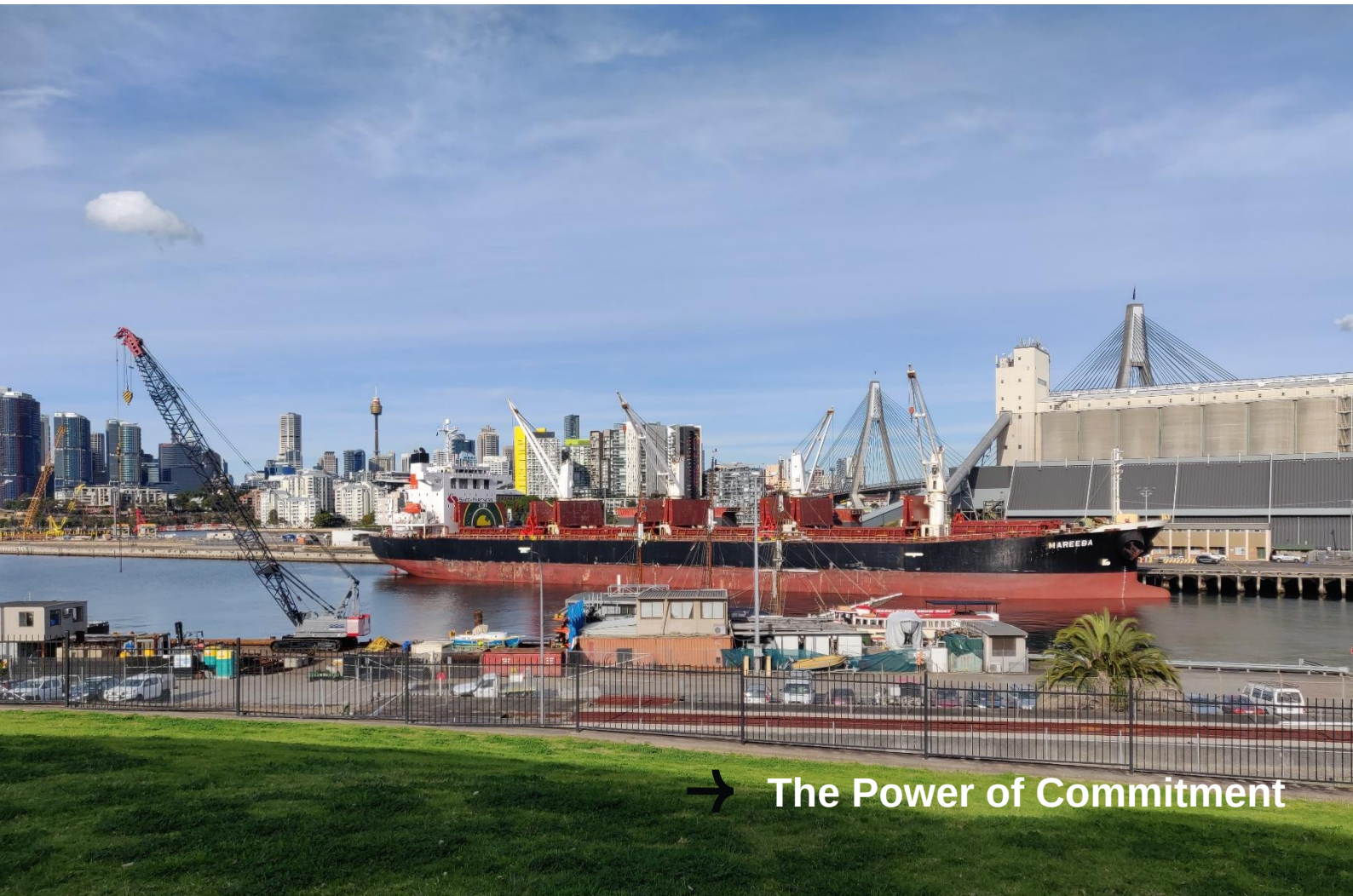
Monthly compliance noise monitoring report

Glebe Island / White Bay

Port Authority of New South Wales

August 2023



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S4	1	C Gordon	E Milton		E Milton		13/10/2023

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 August 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 = 0.3 dB Max. deviation = 0.4 dB
		L02	Maintenance Building on White Bay		14529642	**Initial calibration level 91.5 dBA** Min. deviation = 0.3 dB Max. deviation = 0.3 dB
		L03	Adjacent to White Bay 2		14529643	**Initial calibration level 91.7 dBA** Min. deviation = 0.2 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 = 0.0 dB

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Bulk vessels				
Pioneer	August 7, 2023 / 16:40	August 10, 2023 / 23:57	GLB7	L03
Ken Kon	August 11, 2023 / 09:45	August 14, 2023 / 20:52	GLB7	L03

Vessel name	Arrival date and time	Departure date and time	Berth location	Applicable noise monitoring location/s
Luga	August 13, 2023 / 20:58	August 16, 2023 / 06:58	GLB8	L03
Dynamogracht	August 21, 2023 / 15:45	August 26, 2023 / 17:58	GLB2	Attended monitoring
Akuna	August 23, 2023 / 01:43	August 25, 2023 / 17:27	GLB8	L03
Tawaki	August 31, 2023 / 19:11	September 4, 2023 / 02:03	GLB7	L03
Cruise vessels				
Pacific Adventure	August 3, 2023 / 06:50	August 3, 2023 / 15:58	WBCT	L01
Pacific Adventure	August 7, 2023 / 06:50	August 7, 2023 / 16:58	WBCT	L01
Pacific Adventure	August 19, 2023 / 06:59	August 19, 2023 / 16:00	WBCT	L01
Pacific Adventure	August 22, 2023 / 06:42	August 22, 2023 / 16:14	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
Pioneer	Aug 7 – Aug 11	L03	49	52	62	60	55	65	Yes	Yes
Ken Kon	Aug 11 – Aug 14	L03	54	54	62	60	55	65	Yes	Yes
Luga	Aug 13 – Aug 16	L03	56	57[4]	65	60	55	65	Yes	No[4]
Dynamo gracht	Aug 21 – Aug 26	Attended	48	45	NA[5]	60	55	65	Yes	Yes
Akuna	Aug 23 – Aug 25	L03	55	55	66[6]	60	55	65	Yes	Yes[6]
Tawaki	Aug 30 – Sep 4	L03	55	53	67[7]	60	55	65	Yes	Yes[7]

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) This noise level occurred for the last 2 hours prior to departure, between 5 am and 7 am. Outside these 2 hours, the noise from the Luga was compliant.

Note 5) There were no maximum noise events associated with the Dynamogracht during the noise monitoring period

Note 6) The maximum noise level shown in IMS was 66 dBA. During this visit, there was only 1 exceedance of the L_{Amax} criteria. A review of the data was unable to determine whether this maximum noise level event associated with the vessel. The vessel was compliant with the L_{Amax} criteria at all other times.

Note 7) The maximum noise level shown in IMS was 67 dBA. During this visit, there was only 1 exceedance of the L_{Amax} criteria. A review of the data was unable to determine whether this maximum noise level event associated with the vessel. The vessel was compliant with the L_{Amax} criteria 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
Pacific Adventure	Aug 3	L01	60	-	N/A	58	N/A	-
Pacific Adventure	Aug 7	L01	60	-	N/A	58	N/A	-
Pacific Adventure	Aug 19	L01	60	-	N/A	58	N/A	-

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	Aug 22	L01	59	-	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

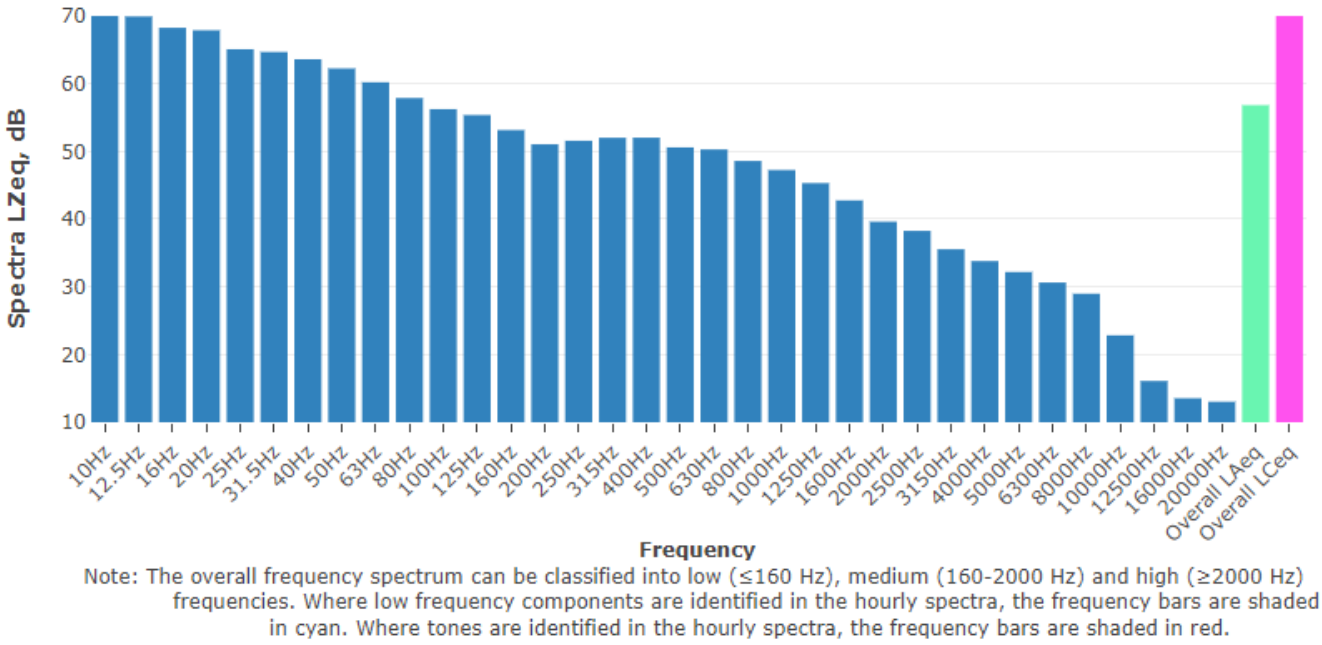
4.1 Pioneer – August 7 – August 11, 2023 (GLB7)

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
August 7, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	49	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	49	No	No	55	Yes
			L_{Amax}	60	-	-	65	Yes
August 8, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	49	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	61	-	-	65	Yes
August 9, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	49	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	49	No	Yes	55	Yes
			L_{Amax}	62	-	-	65	Yes
August 10, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	49	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	52	No	Yes	55	Yes
			L_{Amax}	60	-	-	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 (≤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*

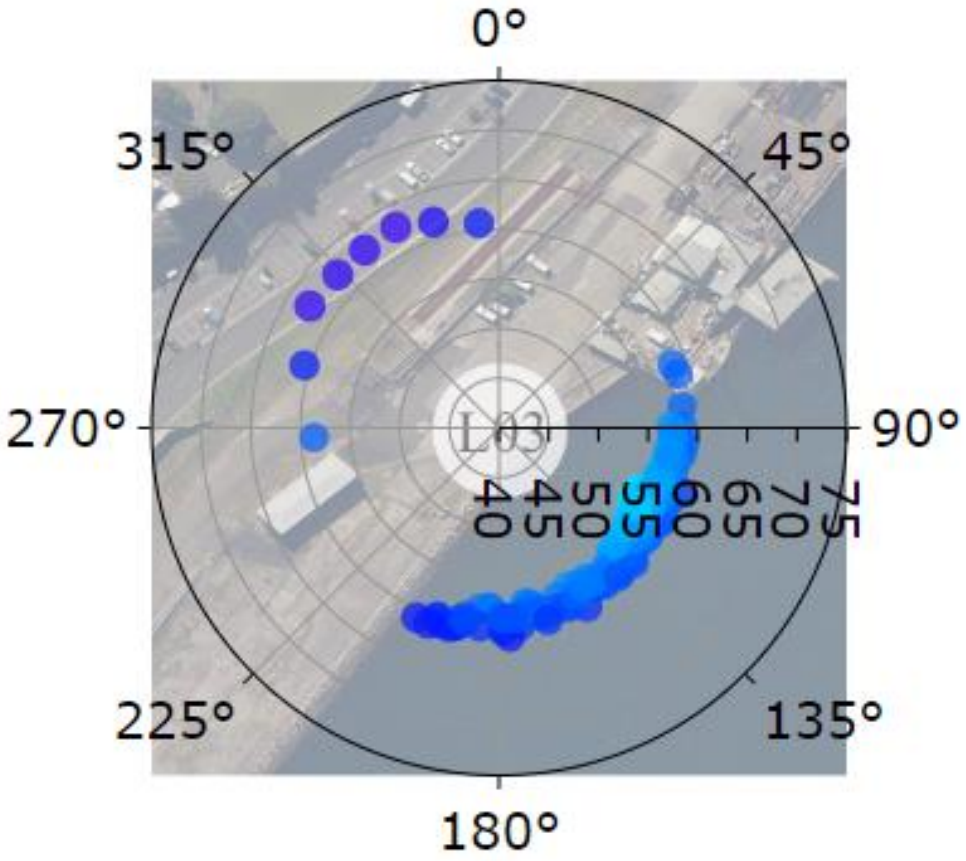


Figure 4.2 Typical vessel polar (directional) plot

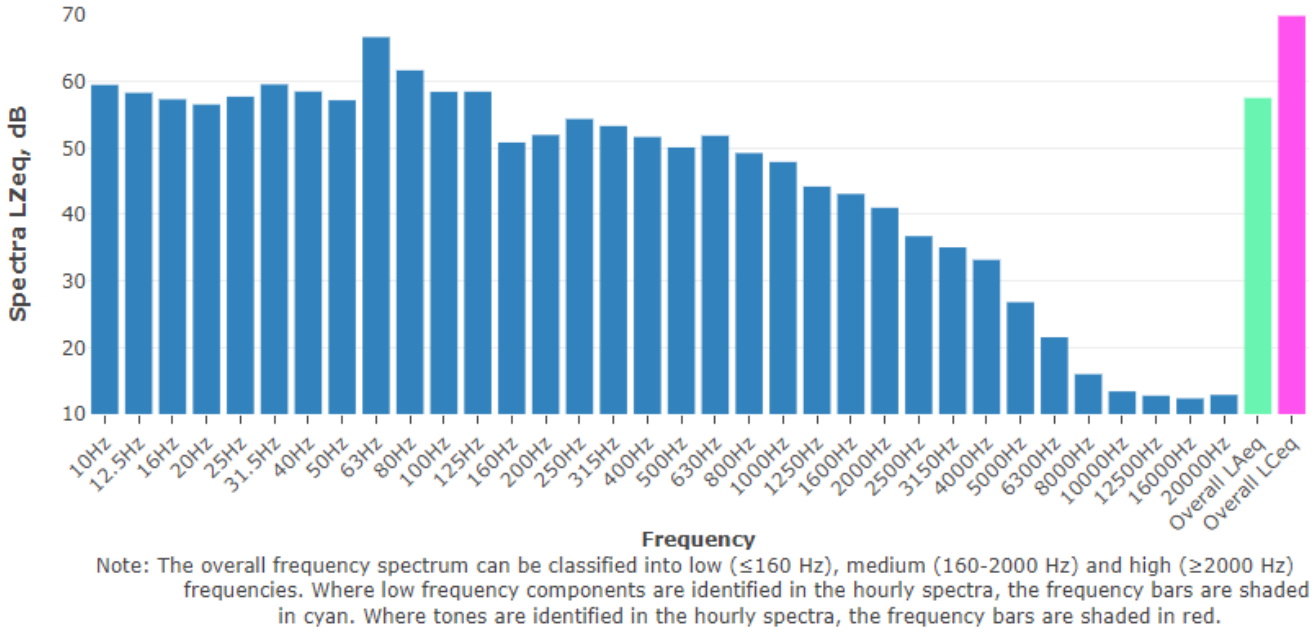
4.2 Ken Kon – August 11 – August 14, 2023 (GLB7)

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
August 11, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	54	No	No	55	Yes
			L_{Amax}	62	-	-	65	Yes
August 12, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	54	No	No	55	Yes
			L_{Amax}	59	-	-	65	Yes
August 13 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	54	No	No	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	-	-	-	-	-
			L_{Amax}	-	-	-	-	-

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

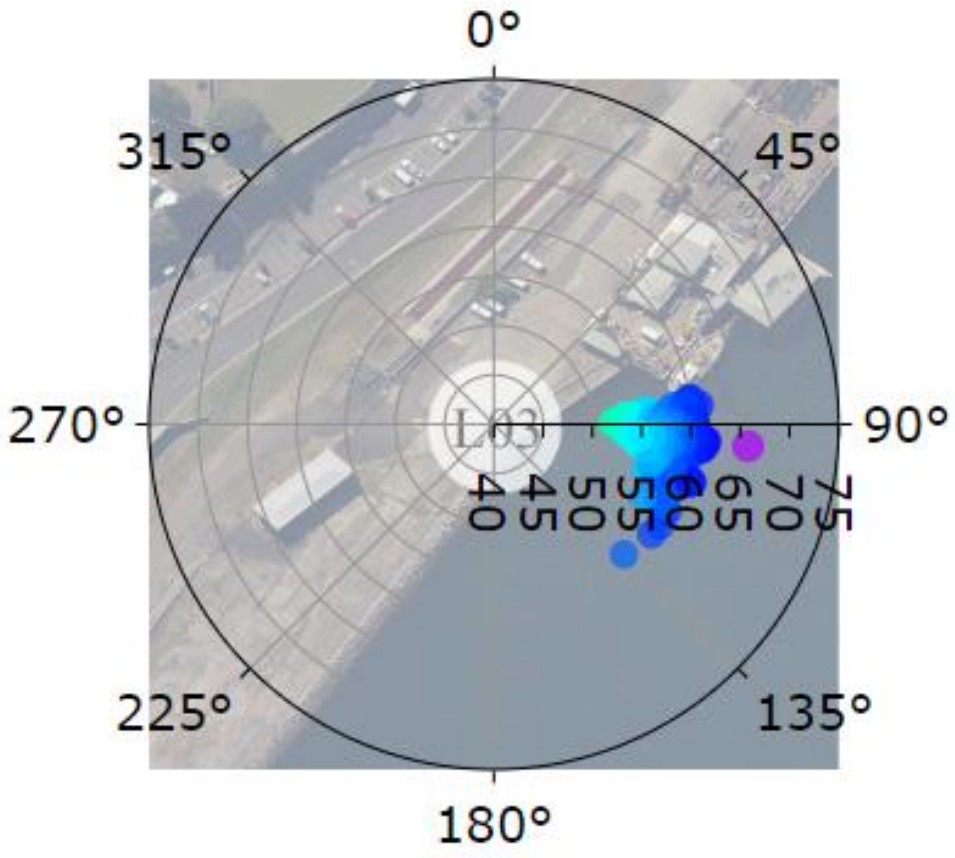


Figure 4.4 Typical vessel polar (directional) plot

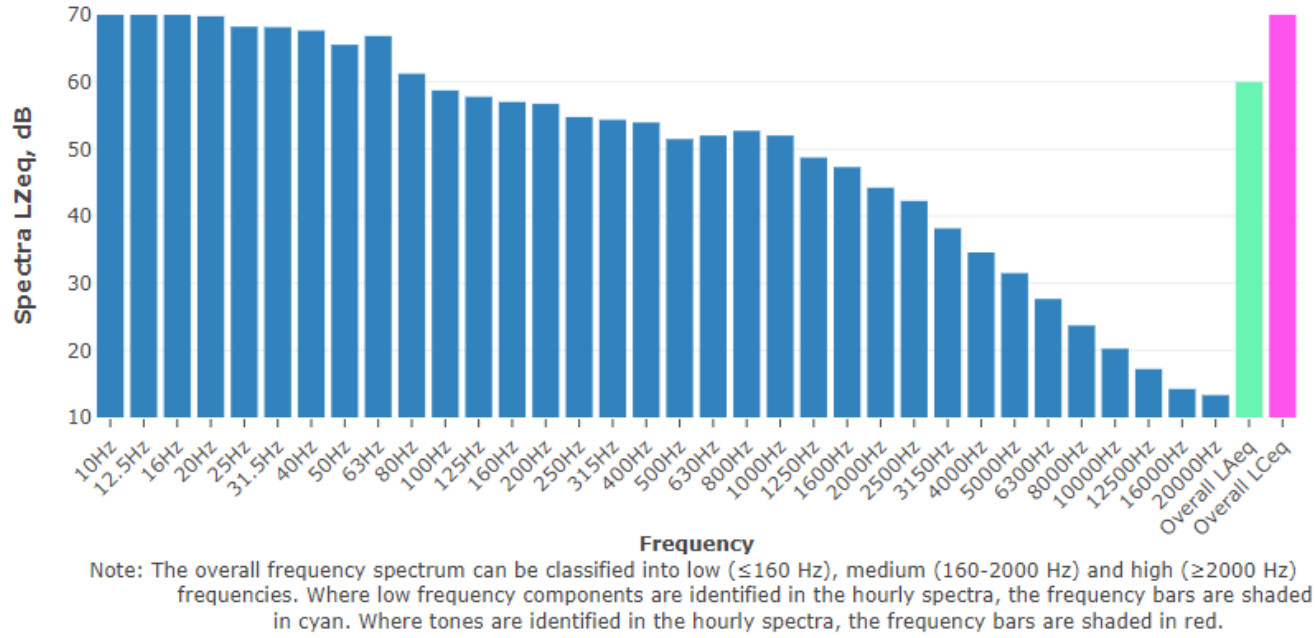
4.3 Luga – August 13 – August 16, 2023 (GLB8)

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
August 13, 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}	65	-	-	65	Yes
August 14, 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}	60	-	-	65	Yes
August 15/16, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	53	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	57[4]	No	Yes	55	No[4]
			L_{Amax}	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) This noise level occurred for the last 2 hours prior to departure, between 5 am and 7 am. Outside these 2 hours, the noise from the Luga was compliant.

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

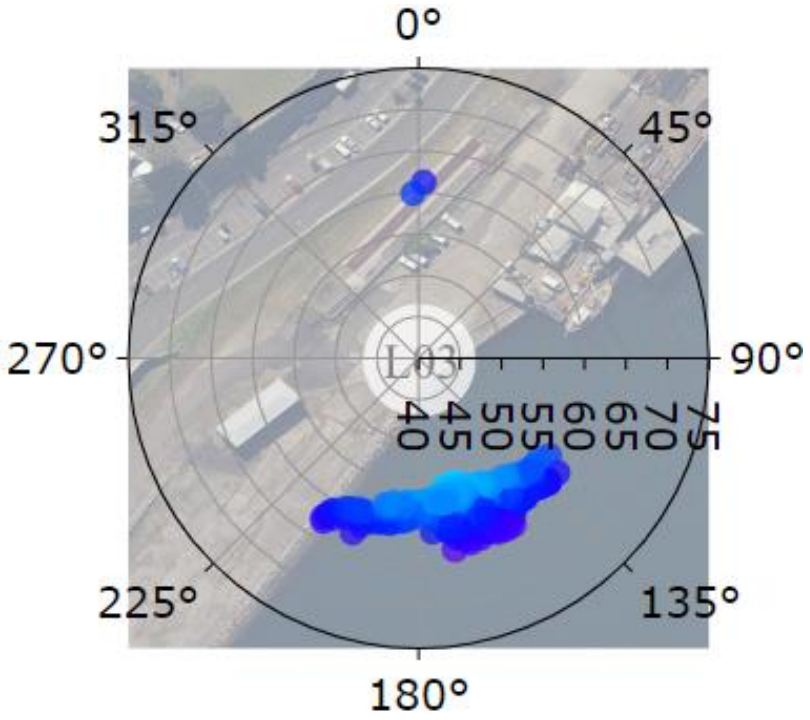


Figure 4.6 Typical vessel polar (directional) plot

4.4 Akuna – August 23 – August 25, 2023 (GLB8)

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
August 22, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	-	No	-	60	-
	Night		$L_{Aeq, 1\ hour}$[1]	55	No	No	55	Yes
			L_{Amax}	66[4]	-	-	65	Yes[4]
August 23, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	55	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	48	No	No	55	Yes
			L_{Amax}	60	-	-	65	Yes
August 24, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	53	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	51	No	No	55	Yes
			L_{Amax}	63	-	-	65	Yes
August 25, 2023	Day	L03	$L_{Aeq, 15\ hour}$[1]	52	No	No	60	Yes
	Night		$L_{Aeq, 1\ hour}$[1]	-	-	-	55	-
			L_{Amax}	-	-	-	65	-

Notes

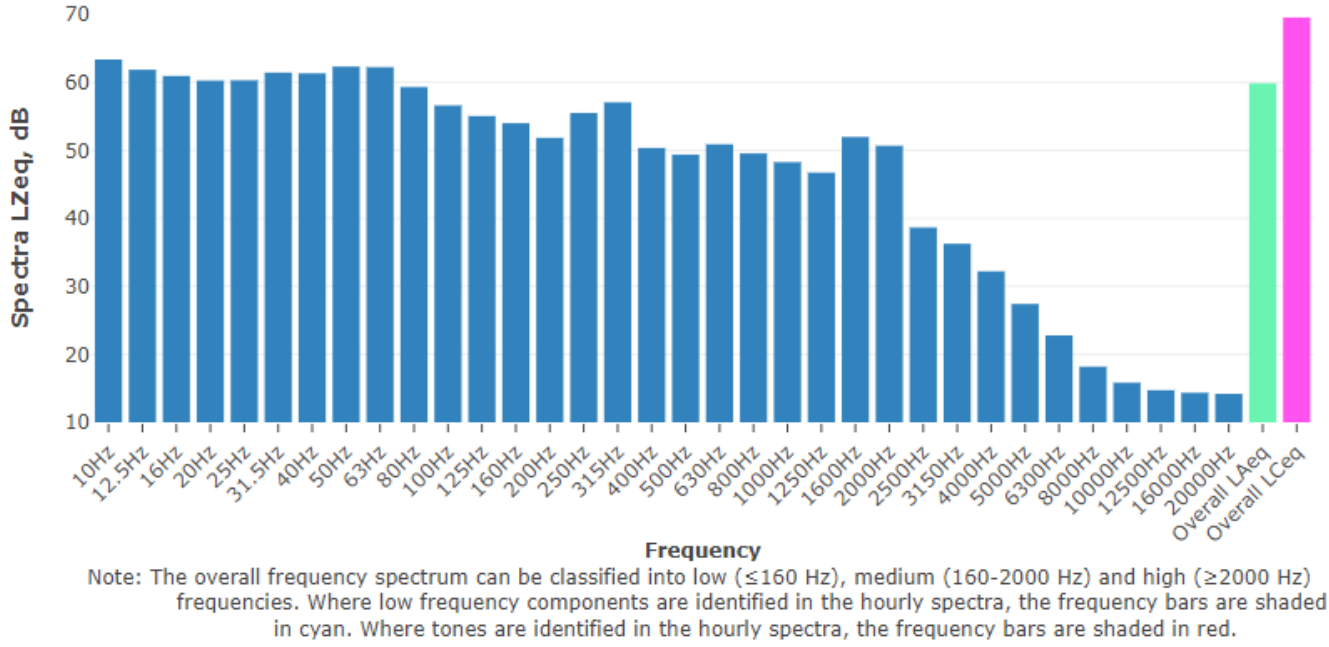
1) Daytime period (7 am to 10 pm) – 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The maximum noise level shown in IMS was 66 dBA. During this visit, there was only 1 exceedance of the L_{Amax} criteria. A review of the data was unable to determine whether this maximum noise level event associated with the vessel. The vessel was compliant with the L_{Amax} criteria at all other times

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 4.7 Typical vessel spectrum – noise level at L03

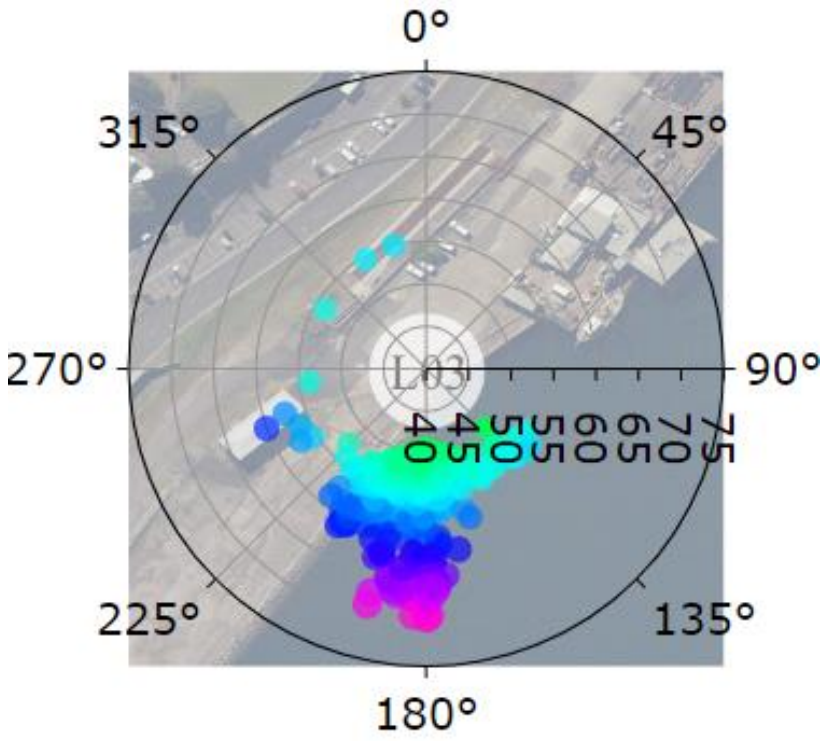


Figure 4.8 Typical vessel polar (directional) plot

4.5 Tawaki – August 31 – September 4, 2023 (GLB7)

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
August 31, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	51	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	53	No	No	55	Yes
			L_{Amax}	67[4]	-	-	65	Yes[4]
September 1, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	55	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	53	No	Yes	55	Yes
			L_{Amax}	64	-	-	65	Yes
September 2, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	53	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	51	No	Yes	55	Yes
			L_{Amax}	56	-	-	65	Yes
September 3/4, 2023	Day	L03	$L_{Aeq,\ 15\ hour}$[1]	50	No	Yes	60	Yes
	Night		$L_{Aeq,\ 1\ hour}$[1]	47	No	Yes	55	Yes
			L_{Amax}	55	-	-	65	Yes

Notes

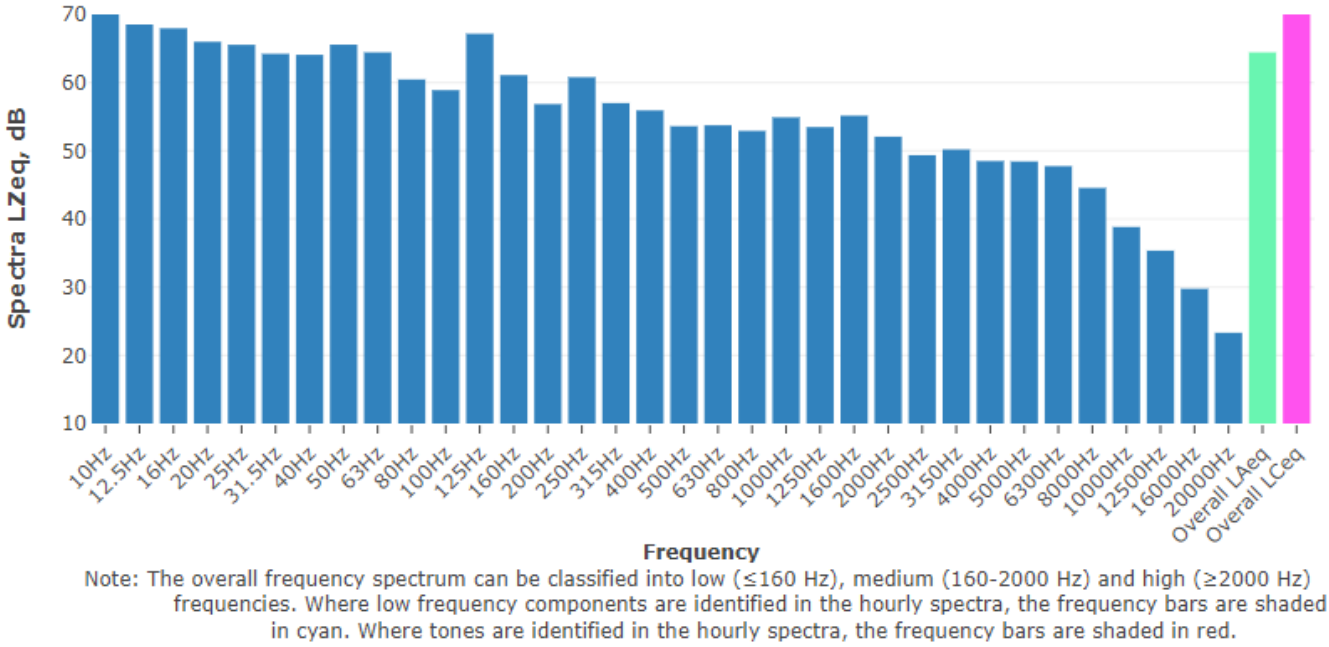
1) Daytime period (7 am to 10 pm) – 15 hours
Night-time period (10 pm to 7 am) – worst case 1 hour

2) Inclusive of any penalties for modifying factors

3) LFN = Low Frequency Noise

4) The maximum noise level shown in IMS was 67 dBA. During this visit, there was only 1 exceedance of the LAmax criteria. A review of the data was unable to determine whether this maximum noise level event associated with the vessel. The vessel was compliant with the LAmax criteria at all other times

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 4.9 Typical vessel spectrum – noise level at L03

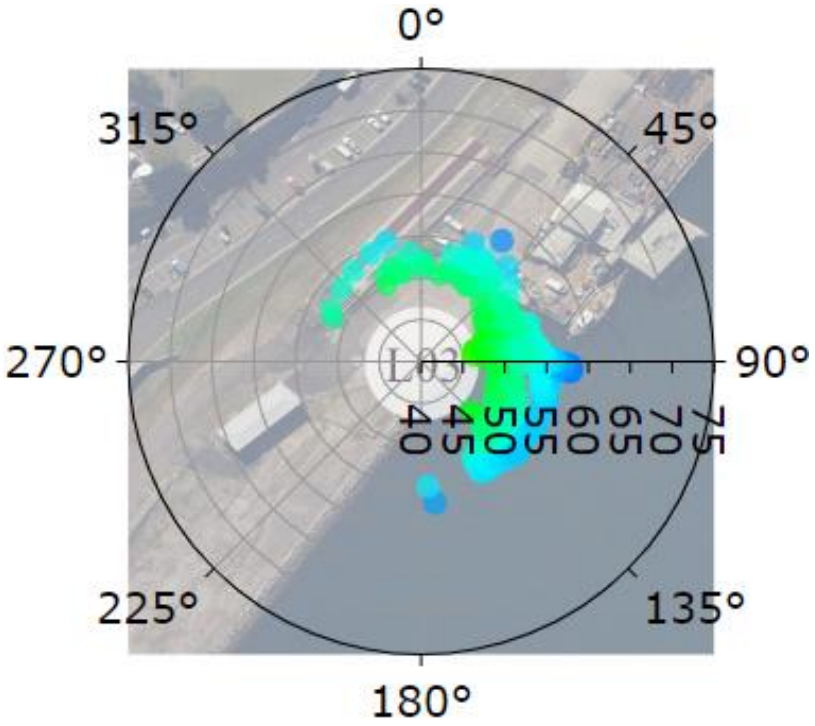


Figure 4.10 Typical vessel polar (directional) plot

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